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Copies of this Catalog are available for examination in all 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 purchased from the Office of Admissions without charge. Reprints of individual sections of the Catalog are also 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 or by request from the Office of Admissions.
## University Calendar

### First Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1980-81</th>
<th>1981-82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>August 25</td>
<td>August 14</td>
</tr>
<tr>
<td>Classes begin</td>
<td>August 29</td>
<td>August 26</td>
</tr>
<tr>
<td>University Holiday</td>
<td>September 1</td>
<td>September 7</td>
</tr>
<tr>
<td>Homecoming</td>
<td>October 18</td>
<td>October 10</td>
</tr>
<tr>
<td>Thanksgiving recess</td>
<td>November 26</td>
<td>November 24</td>
</tr>
<tr>
<td>University holidays</td>
<td>November 27-28</td>
<td>November 26-27</td>
</tr>
<tr>
<td>Classes resume</td>
<td>December 1</td>
<td>November 30</td>
</tr>
<tr>
<td>Class and Examination week</td>
<td>December 12</td>
<td>December 11</td>
</tr>
<tr>
<td>Commencement</td>
<td>December 19</td>
<td>December 19</td>
</tr>
<tr>
<td>University holidays</td>
<td>December 20</td>
<td>December 24-25</td>
</tr>
<tr>
<td>University holiday</td>
<td>December 26-28</td>
<td>January 1</td>
</tr>
</tbody>
</table>

### Second Semester

<table>
<thead>
<tr>
<th>Event</th>
<th>1980-81</th>
<th>1981-82</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration begins</td>
<td>January 15</td>
<td>January 14</td>
</tr>
<tr>
<td>Classes begin</td>
<td>January 19</td>
<td>January 18</td>
</tr>
<tr>
<td>Foundation Day</td>
<td>February 26</td>
<td>February 25</td>
</tr>
<tr>
<td>Spring vacation begins</td>
<td>March 20</td>
<td>March 19</td>
</tr>
<tr>
<td>Saturday classes only meet</td>
<td>March 21</td>
<td>March 20</td>
</tr>
<tr>
<td>Classes resume</td>
<td>March 20</td>
<td>March 29</td>
</tr>
<tr>
<td>Class and Examination week</td>
<td>May 8</td>
<td>May 7</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 11-15</td>
<td>May 10-14</td>
</tr>
<tr>
<td>University holiday</td>
<td>May 18</td>
<td>May 15</td>
</tr>
<tr>
<td>Summer Session</td>
<td>May 25</td>
<td>May 31</td>
</tr>
</tbody>
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### Summer Session

<table>
<thead>
<tr>
<th>Event</th>
<th>1981</th>
<th>1982</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration</td>
<td>June 8</td>
<td>June 7</td>
</tr>
<tr>
<td>Classes begin</td>
<td>June 9</td>
<td>June 8</td>
</tr>
<tr>
<td>University Holiday</td>
<td>July 3</td>
<td>July 5</td>
</tr>
<tr>
<td>Session ends</td>
<td>July 31</td>
<td>July 30</td>
</tr>
<tr>
<td>Commencement</td>
<td>July 31</td>
<td>July 30</td>
</tr>
<tr>
<td>Independent Study Unit runs for law and graduate students.</td>
<td>August 3</td>
<td>August 2</td>
</tr>
<tr>
<td>Close of Independent Study Unit</td>
<td>August 21</td>
<td>August 20</td>
</tr>
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<td>College of Medicine</td>
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</table>
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, Letters, Library 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 an increasing number of interdisciplinary courses. Total University enrollment during 1979-80 was about 23,300 students.

Founded on February 25, 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 institution of higher education to accept women and men on an equal basis (the year was 1860). It became the first university to accept creative work in law as the traditional academic thesis from graduate students in the arts. It pioneered the now world-renowned Iowa Writers Workshop for creative literature. It is recognized as the place where the field of speech therapy originated. It has earned recognition for the quality and vitality of its teaching and research programs in space physics, expository writing, and the teaching of composition, and in graduate programs in speech, dramatic art, and communications, to cite just a few recent examples.

The UI faculty includes some 1,500 full-time members, many of whom have established national and international reputations. Their effectiveness as teachers is significantly 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 undergraduates and graduate/professional instruction.

The University’s undergraduate enrollment is about evenly divided between men and women students. Approximately four out of five undergraduates are Iowa residents. The balance consists of students from all other 49 states and more than 80 foreign countries.

About 68 percent of the University’s entering freshmen had a "B" average or above in high school. Approximately 47 percent ranked in the upper half of their high school classes and about 29 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-fifth have education loans. One of ten undergraduates and one of ten 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 lifelong 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" learning opportunities range from mini-courses, 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 degree program designed 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 Business Administration, Bachelor of Science in Engineering, Bachelor of Science in Chemical Engineering, Bachelor of Science in Civil Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Industrial Engineering, Bachelor of Science in Mechanical Engineering, Bachelor of Science in Pharmacy, Bachelor of Science in Nursing, Doctor of Dental Surgery, June Doctor, Doctor of Medicine, Master of Arts, Master of Science, Master of Business Administration, Master of Fine Arts, Master of Social Work, Master of Arts in Teaching, Education Specialist, Doctor of Musical Arts, and Doctor of Philosophy.

Accreditation and Associations
The University of Iowa has been accredited by the Higher Learning Commission of the North Central Association of Colleges and Secondary Schools since the association's organization in 1915. The University is a member of the Association of American Universities. It is associated with Northwestern, Indiana, Purdue, Ohio State, and Michigan State universities, and affiliated with the Association of American Colleges and the Committee on 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 Assembly of Collegiate Schools of Business

Density—American Dental Association
Education—National Council for Accreditation of Teacher Education
Engineering—The Accreditation Board for Engineering and Technology (ABET) of the American Association of Engineering Societies (AAAS), formerly the Engineers' Council for Professional Development (ECPD)
Law—American Bar Association and Association of American Law Schools
Medicine— Liaison Committee on Medical Education (representing the American Medical Association and the Association of American Medical Colleges)
Nursing—National League for Nursing
Pharmacy—American Council on Pharmaceutical Education

Schools
Journalism—American Council on Education in Journalism
Library 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 Education
Dietetics—American Dietetic Association
Hospital Administration—Accrediting Commission on Education for Health Service Administration
Medical Technology—National Accrediting Agency for Clinical Laboratory Sciences
Physician's Assistant—American Medical Association Council on Medical Education in collaboration with the Joint Review Committee on Educational Programs for the Assistant to the Primary Care Physician
Physical Therapy—American Medical Association Committee on Allied Health Education Accreditation and the American Physical Therapy Association
Nuclear Medical Technology—American Medical Association
Psychology—American Psychological Association
Speech Pathology and Audiology—American Speech and Hearing Association

Sessions
The University's academic year consists of two semesters of approximately 17 weeks each. The University also conducts an eight-week summer session and, following that, an independent Study of from one to four additional weeks 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. The freedom to learn and the freedom to teach depends upon appropriate opportunities and conditions in the classrooms, on the campus, and in the larger community. Students are expected to respect the general conditions conducive to such freedom. Accordingly, the University has developed a Code of Student Life that is intended to provide and safeguard the rights of every individual student to exercise fully his or her freedom to learn without undue interference by others. This code applies only to student misconduct which adversely affects 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 a difference in the treatment of persons because of race, creed, color, national origin, age, sex, or any other classifications which 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 works cooperatively with the community in furthering this principle.

University Rating System

<table>
<thead>
<tr>
<th>Code</th>
<th>Definition</th>
<th>Grade Rating/ Semester Tier</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>superior</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>above average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>below average</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>failing</td>
<td>0</td>
</tr>
<tr>
<td>&quot;</td>
<td>in progress</td>
<td></td>
</tr>
<tr>
<td>D*</td>
<td>no grade</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>passing</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>audit</td>
<td></td>
</tr>
<tr>
<td>&quot;</td>
<td>satisfactory</td>
<td></td>
</tr>
</tbody>
</table>

*(Graduate College only)*

| W    | withdrawal     |                            |

(*Not used in computing grade-point averages*)

Recognition of High Scholastic Achievement

The University recognizes high scholastic achievement by awarding degrees "with distinction," "with highest distinction," and "without distinction," based on these criteria:

- "With distinction": Grades of "A" and "B" with no "C" or "D" grades.
- "With highest distinction": Grades of "A" and no "B" grades.
- "Without distinction": Any combination of grades.

Records

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

Honorary and Professional Societies

Phi Beta Kappa, Sigma Xi, Mortar Board, and Omicron Delta Kappa are among 84 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, 108 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 who are not initially enrolled for full-time study at the University during the regular academic year. 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—Fall sessions

College of Business

Admission—April 1 for summer session, June 1 for fall semester, November 15 for spring semester

College of Dentistry—December 1, fall semester only

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

Graduate College—The general Graduate College deadlines: 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—March 1 for fall semester, June 15 for spring semester, December 15 for summer session

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's Assistant Program—January 15, fall semester only

Teacher Education Program—May 1 preceding 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...
Anyone interested in applying for undergraduate admission at The University of Iowa should complete the ACT tests during the fall prior to his or her anticipated registration.

Applicants who have completed the tests but did not have their scores reported to the University should request this reporting from the Records Section, American College Testing Program, Box 451, Iowa City, Iowa 52242. Further information, including testing dates and location, may be obtained from high school or college counselors, or from the ACT Program.

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

Medical Information
In the interest of providing optimum health care, Student Health Service strongly recommends that, following their admission, incoming students submit physical examination reports and personal health histories on the forms provided for that purpose. This information does not affect the student's admission and is exclusively for Student Health Service use as a necessary background for attending to the student's health needs.

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

Tuition and Fees
The following is the University's schedule of tuition and fees, per semester, for the academic year 1960-61:

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>hour(s)</td>
<td>no.</td>
</tr>
<tr>
<td>0</td>
<td>60.00</td>
</tr>
<tr>
<td>1</td>
<td>125.00</td>
</tr>
<tr>
<td>2</td>
<td>250.00</td>
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<tr>
<td>3</td>
<td>375.00</td>
</tr>
<tr>
<td>4</td>
<td>500.00</td>
</tr>
<tr>
<td>5</td>
<td>625.00</td>
</tr>
<tr>
<td>6</td>
<td>750.00</td>
</tr>
</tbody>
</table>

*eleven hours and over

*graduate fees are $40 per semester hour. Correspondence courses are $25 per semester hour. All fees are subject to change by action of the State Board of Regents.

General fees provide for the student's use of Iowa Memorial Union facilities, and of libraries, laboratories, and gymnasia; free examination 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, on a housing unit basis; certain student hospital services; and other activities and services as announced. 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,
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 undeclared or preprofessional program goals may be assigned an adviser from 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
Advisors of the Undergraduate Academic Advising Center are specifically trained to help students who wish to explore alternative fields of study as they select their major or minor programs of study 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 admissions, academic majors and courses, requirements, grading options, career and degree 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 services and operations, and provides referrals to inappropriate services to meet needs related to University life. The center is open from 8 a.m. until 9 p.m. Monday through Saturday and from noon until 4 p.m. Sunday. During hours the center is not staffed, a telephone answering service records questions or messages for answer or referral as soon as the center opens.

Career Services and Placement Center
Career Planning
The staff in the planning and resources area provides students with the information and resources necessary for good, sound career decision making. Students have the opportunity to avail themselves of information through individual advising appointments, seminars, workshops, and a 2-semester-hour course. Making a Vocational/Educational Choice. The center assists interested students in expanding their career options, in making realistic career plans, and in learning how to use career information to their best advantage.
learning how to use career information to their best advantage.

Career Resource Center
The Career Resource Center contains a wealth of information students can use to help them make career/academic decisions, conduct a job search, and prepare for interviewing. The resources contain information from professional associations, government agencies, Occupational Outlook Handbook, Dictionary of Occupational Titles and job search guides. A career information specialist is always on duty to help students use the resources to meet their specific needs.

Cooperative Education
Coordinated by the Career Service and Placement Center, the Cooperative Education Program offers students the opportunity to alternate academic studies with related work experiences. Students in business, engineering, or liberal arts who meet the prerequisites of their respective colleges or academic departments generally enter the program during their freshman year. Cooperative education positions are filled on a competitive basis, with participating employers making the final selections from among the student candidates.

Placement
The center provides job placement assistance for all seniors and graduates students seeking employment in business, industry, government, and nonprofit agencies. Assistance includes individual consultations with professional placement counselors, seminars for developing job-hunting/interview skills, on-campus interviews with prospective employers, information on employment trends, and current job openings for college graduates.

Information sent by employers is made available to students and alumni in the Employer Literature Room. The material provides background information about organizations interviewing on campus or listing positions with Career Services. (Also see the "College of Engineering" and "College of Education" sections of the catalog for placement services guide colleges offer.)

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 transfer consultants and peer counselors (former community college transfer students) conduct several programs 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 particular institution. In addition, OCCA develops and distributes several publications useful to transfer students.

OCCA also coordinates the TRANSFO computerized information system. TRANSFO files contain complete lists of community college courses that have been approved by academic departments as meeting the requirements for various baccalaureate majors.

Counseling Service
The University Counseling Service staff of professional psychologists and advanced doctoral students offers individual, small group, and marital counseling services to all University students. All services are available to students without cost.

Dental Service
The dental clinic at The University of Iowa College of Dentistry is primarily for educational purposes. All employees of the University and all students who are registered in the University may require dental treatment at the college and will be accorded the same opportunity for treatment as any other patient. However, the College of Dentistry is not affiliated with the University Student Health Service and does not render services under the student health hospitalization fund. Fees are established for all treatment rendered, and patients are to pay cash or use Master Charge cards.

Evaluation and Examination Service
Evaluation and Examination Service duplicates, scores, and analyzes many course examinations; helps faculty members develop and improve their classroom tests by providing analyses of the results of examinations; helps faculty or student groups with particular project requests, such as teacher course evaluation and development; conducts institutional research projects and provides consulting services on questionnaire and survey design; administers many 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), Medical College Admission Test (MCAT), Graduate Record Examination (GRE), Graduate Management Admission Test (GMAT), Graduate School Foreign Language Test (GPFLT), Law School Admission Test (LSAT), Test of English as a Foreign Language (TOEFL), Minor Analogies Test (MAT), and College-Level Examination Program (CLEP).

Health Service
The Student Health Service is located in the Children's Hospital in the University medical center complex. All regular students at the University, except those registered in off-campus courses, are eligible for out-patient care at the Student Health Clinic. There are charges for laboratory procedures, x-rays, accident examinations, minor surgery, and some special procedures. All students are advised to have health and accident insurance. A University-sponsored group insurance is available for individual students or as a family plan.
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 sports and recreational activities. (See “Recreational Services” in the “General Services” section of the Catalog.)

International Education and Services

Advices in the Office of International Education and Services promote and facilitate interaction between the university’s American and foreign students and professionals, and provide University foreign students and professionals with information, advice, counseling and counseling in such areas as immigration, personal and social adjustment, and financial planning.

The OIES operates the International Center, which students, faculty, and Iowa City community members use for meetings, meals, and activities with an international focus.

Overseas Study and Travel Abroad

The office maintains an extensive offering of information on study abroad programs offered by the University and by foreign or domestic Institutions of higher education, as well as material on foreign university libraries and special collections, volunteer work, student flight and land travel, hosteling, overseas accommodations, etc. The office advises students individual counseling on study abroad programs which will complement their on-campus academic programs; assists them in obtaining correct credit assignment for foreign study; and provides current information on overseas conditions, health regulations, customs and duties, and all aspects of foreign travel. The International student Identity Card is available in this office.

Iowa Memorial Union

The Iowa Memorial Union is the center of University social activities. It houses the Student Activities Center, University Counseling Service, Career Services and Placement Center, and Campus Information Center. The facilities include a variety of food services, a bowling and billiards area, a barber shop, an art resource center, a bookstore, a sundries shop, a television room, lounges, meeting rooms, auditoria for lectures and concerts, art and sculpture display areas, and, in the adjoining Iowa House, 106 guest rooms for parvis, alumni, conference and workshop participants, and other visitors to the campus.

Orientation

With the aid of representative student, faculty, and staff personnel, the Orientation Department design and conduct a wide variety of programs to help new students—freshmen, transfer, and graduate—with their transition to University life. Orientation is intended not only to assist new students with academic building, academic advising and registration procedures, but also to acquaint them with the educational facilities, student services, and other available source of help. In addition, Orientation’s programming is designed to immerse 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 a variety of individualized and class instruction for any University students who wish to improve their college-level reading performances. Students are asked to specify what reading problems they have, teachers adopt practical methods and methods to help remedy those problems. Students may work on improving study skills, including library use, text-taking abilities, organization of research, and general comprehension reading.
The Reading Lab offers one service course, Voluntary Reading Lab, which meets twice a week for 12 weeks. Students may attend more or less often if they wish, and may enroll at any point during that time if they feel they need reading help. The lab service course earns no credit and satisfies no grade. Ordinarily, there are no outside assignments. Developmental reading work is restricted to lab hours, and makes exclusive use of lab materials and the students' own texts in other courses.

The lab also offers: 10% Rhetoric, a one-semester, two-credit course for students who need exceptional help preparing for college-level reading; and 4F:20 Advanced Reading Comprehension, 4F:30 Spedical Reading, and 4F:40 Practical College Vocabulary, independent five-week modular courses for one semester hour of credit each.

**Registrar**

The Office of the Registrar determines the enrollment status of each student, issues University identification cards, approves registration procedures, assesses fees, and maintains all students' academic records and official transcripts. Issues official transcripts; assists students in determining graduation requirements, processes 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.

**Special Support Services**

The Office of Special Support Services (SASS) 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 Opportunity Program; 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 needed services without charge. Services include diagnostic examinations, consultations, individual clinic sessions, small group sessions, and referrals to other clinics as needed.

**Sponsored Programs**

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

The division also publishes a weekly newsletter, Research and Graduate News, which contains program and deadline information and carries a special section devoted to graduate fellowships. These newsletters are available at departmental offices; further inquiries about these opportunities are welcome at the resource center.

In some instances, the center provides direct assistance with applications for graduate fellowships, as is the case with graduate fellowships authorized under the Fulbright-Hays Act, with the Tutorials Program Scholarship, and with dissertation support applications to federal agencies in the United States.

**Student Activities**

Members of the Student Activities staff work with students who are interested in forming new organizations, becoming active in existing organizations, or improving the quality of organizations. Student Activities offers constructive assistance in programming, planning, budgeting, membership recruitment, decision making, goal setting, and other aspects of organizational administration. Through the College of Education's Division of Counselor Education, Student Activities offers a three-credit Course, 7C:197 Management and Motivation in Organizations and Committees, for leaders and members of student organizations. Student Activities designs mini-courses to meet student organizations' needs at their request. The Office of Student Activities in the Iowa Memorial Union provides typewriters, duplicators and mimeograph machines, a photocopier, two telephones, and office supply purchasing services for use by recognized student organizations. The Student Activities Resource Center contains readings related to personal growth and organizational development.

**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 $2 for the first copy, $1 each for the second through fifth, 50 cents each beyond the fifth. 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 services veterans, dependents of veterans, and servicemen 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 the academic, vocational, and personal needs of women. Its staff acts as a resource for many women's organizations, sponsors numerous cultural programs, seminars, support
Writing Lab

The lab offers individual instruction in writing to any University student. Each participating student’s own writing provides the material for the course for that person. The teacher responds to what each person writes and, in personal conferences, helps him or her identify and overcome particular writing problems.

Any student who believes he or she cannot do the writing expected in the required rhetoric course may confer with the director of the lab about taking individual instruction in writing for credit (10 or 10 credits) before registering for the required course. Noncredit students may enroll throughout the semester.
Housing

Fair Housing Policy

The following is the University's statement on fair housing practices: "We end and shall be the firm policy of the University that householders shall not discriminate against race, creed, color, or national origin." Iowa City has a fair housing ordinance providing for equal opportunity to secure housing without discrimination due to race, religion, or ancestry, except in certain circumstances involving common 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

University residence hall furnishings, facilities, and services are designed to provide a pleasant atmosphere conducive to effective study. Single, double, triple, and quadruple rooms with hall or partial suite are available in the Grand Avenue Residence Halls (west side of the campus), which include Hillcrest, Quadrangle, Westwold, South Quadrangle, Residence Halls, and in the Clinton Street Residence Halls (east side of the campus), which include Burge Hall, Currier Hall, Daum House, and Stanley Hall. There are lounges, study rooms, lounging areas, and sundry stores in or available to each residence hall.

Each residence hall is divided into small living units. Each unit has a full-time hall resident assistant who is a resident assistant in each living unit. All students are encouraged to participate in residence hall government at the unit, building, area, or system level.

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 required on the application form, sign the contract, and return the completed application contract with his or her check in the amount of $50 to the University Housing Assignment Office, Burge Hall.

Applications for residence hall housing are not considered until the applicant has been admitted to the University. Roommate assignments are made without regard to race, color, national origin, or religion.

Students already living in University residence halls are given priority in the assignment of accommodations. 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 after June 1, if for the academic year; after December 1, if for the second semester only; after March 15, if for the summer session; or ten days after the University Housing Assignment Office issues notice of the acceptance of the contract and assignment of
accommodations. If the notice is made within nine days before the beginning of registration, the contract becomes binding two days before the beginning of registration.

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 1980-81 academic year are $1,876 for a single room and $1,532 for a triple, with full board. Rates for the several available room and board options vary according to the accommodations, and all rates are subject to change annually.

Family Housing
There are 790 University-operated apartments available to married students or legally defined family units in the Hawkeye Drive, Hawkeye Court, Hshawkey Park, and Parklawn complexes.

Rents for 1980-81 range from $119 to $127 per month for one-bedroom units (there are only 41 available at the lower rate) to $184.50 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 applicant's meeting all University admission requirements. Applications may be filed before completion of application, but will not be accepted more than a year in advance.

A $25 advance payment is required for all apartments at the time they are offered for leasing.

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—large apartment complexes, smaller complexes, rooms in private homes, and one-, two-, and three-bedroom duplexes and houses. The clearinghouse also suggests other resources to use 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 Acacia, Alpha Epsilon Pi, Beta Theta Pi, Delta Chi, Delta Tau Delta, Delta Upsilon, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Pi Kappa Alpha, Phi Kappa Psi, Phi Kappa Sigma, Phi 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), Phi Kappa Phi (medicine), and Phi Omega (dentistry).

Sororities
The 13 national sororities active at Iowa are Alpha Chi Omega, Alpha Delta Pi, 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, 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. 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 94701) 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 will submit only one application each year to be considered for all types of assistance administered by the Office of Student Financial Aid. The application deadline is March 1.

The Presidential Scholars' Program

The University annually awards $1,000 Presidential Scholarships, renewable for a maximum of four years of University enrollment, to ten Iowa high school students in recognition of their outstanding academic achievements. All other nominees for recognition in the Presidential Scholars' Program receive $100 Dean's Scholarships for the freshman year of University enrollment.

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 $1,500 per year and are renewable for a four-year period.

Freshman Honor Scholarships

Entering 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 Honors Scholars and receive $100 Freshman Honor Awards.

Transfer Honor Scholarships

Community college students transferring to the University with a 3.25 grade-point average or above qualify for $100 Honor Scholarships.

General Scholarships

To qualify for general 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 ten percent of his or her high school class. An upperclassman or a transfer student must have at least a 3.0 cumulative grade-point average to qualify for an initial scholarship award, and must
FINANCIAL AID

National Direct Students Loans (NDSL)
The NDSL program is the University's largest source of long-term student loans. Graduates may borrow up to $1,000 a year and $5,000 over all, graduates up to $2,500 a year and $10,000 over all. NDSL assistance is available to students who are citizens or permanent residents of the United States and who are enrolled at least half-time. Repayment, at 3 percent interest, begins nine months after the recipient ceases to be at least a half-time student.

Guaranteed Student Loans
Under either the Iowa Guaranteed Student Loan Program or the Federally Insured Student Loan program, undergraduate students may borrow up to $2,000 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 percent interest, when he or she ceases to be at least a half-time student.

Health Professions Scholarships and Loans
This program assists United States citizens and nationals studying fulltime to be doctors of medicine, dentistry, osteopathy, optometry, podiatry, or veterinary medicine, or toward degrees in pharmacy, nursing, or allied health professions. 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 7 percent.

Low Enforcement Education Grants
Grants of up to $400 per semester for actual tuition and book costs are available to in-service law enforcement personnel enrolled at least part-time in law enforcement studies. A special application form is required. Forms are available from the Office of Student Financial Aid.

Part-Time Jobs
More than half 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 services, hospitals, and libraries. Hours range from 10 to 20 per week. For beginning students, the recommended maximum is 12 hours per week.

Work-Study
The federal College Work-Study Program provides part-time work through the Office of Student Financial Aid, to expand employment opportunities for students who must meet part of their educational expenses with their own earnings. As far as possible, Work-Study jobs are arranged to give students work experience related to their educational goals. Work-Study employees may work an average of 20 hours per week.

Other Sources of Aid
For information about departmental financial aid, the student should inquire at the office of the academic program in which he or she is interested. The resource room of the University’s Division of Sponsored Programs is devoted entirely to information on student aid available from such non-university sources as foundations and professional associations. Most of this aid is for graduate study, but some is available to undergraduate students.

Information about financial assistance for educationally, economically, and/or culturally disadvantaged students is

Basic Educational Opportunity Grants (BEOG)
Students applying for University financial aid should also apply for entitlement to federal BEOG assistance. The United States Office of Education determines eligibility for a BEOG award. The maximum award is $1,600 per academic year, minus the amount of the applicant's computed family contribution. The student may use his or her CSS or ACT financial statement to apply for BEOG eligibility, or may obtain a BEOG application form 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 financial need. The maximum grant is $1,000 per academic year or one-half of the student's academic-year expenses, whichever is less. The University must match the amount of the SEOG aid.

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 4s20ication is required.

maintain at least a 2.75 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.

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available from the University's Department of Special/Support Services.

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

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

Information about Social Security educational benefits for children of persons retired, disabled, or deceased is available at all Social Security offices.

Information about Education Aid to War Orphans is available from the Iowa Bonus Board (State House, Des Moines, IA 50318).

An itemized list of the University's financial aid sources is available from the Office of Student Financial Aid.
The University of Iowa Health Center

The University of Iowa plays a major role in the training of health professionals for Iowa and the nation. In its Health Center are found the academical programs, clinical facilities, and service agencies 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 “refreshers.”

Programs, faculties, and courses of the colleges of dentistry, medicine, nursing, and pharmacy are described elsewhere in this Catalog. Other health center units and related programs are described below.

The University of Iowa Hospitals and Clinics

Director and assistant is the president for health services: John W. Cohnhaus.

Deputy director: Clifford M. Elledge.

Assistant: Mary T. Fuller.

Assistant to the director: Douglas H. Williamson.

Assistant directors: John H. Bailey, Duane Rosemann.

Assistant to the director for legal services: Robert D. Miller.

departments: Surgery: Dr. Warren G. Bricker, Chairman; Dr. John L. Noyes, Chairman Emeritus; Dr. Donald B. Coates, Cardiology; Dr. John R. Strong, Neurology; Dr. Robert G. Halsted, Vascular Surgery; Dr. Frederic Healy, Thoracic Surgery; Dr. Benjamin S. Rees, Obstetrics.

Obstetrician and Gynecologist: Dr. F. C. Stuhr.

Ophthalmology: Dr. Raymond C. Pogue, Ophthalmologist; Dr. Brian K. Lcko, Ophthalmologist and Neuroophthalmologist; Dr. George D. Freeman, Ophthalmologist; Dr. Fred Smith, Pediatrician; Dr. George Winkler, Pediatrics; Dr. Edward A. Fauston, Radiologist; Dr. Stanley Zifkin, Anesthesiologist; Dr. David A. Copel, Urologist.

Largest university-owned teaching health-care complex in the nation. The University of Iowa Hospitals and Clinics is 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 500 physicians, dentists, and pharmacists gain advanced clinical knowledge and skills in the health care specialties they have chosen to pursue.

There are 1,053 beds in the hospital complex, accommodating some 40,000 admissions annually. In addition, 51 specialty clinics accommodate another 315,000 ambulatory patients each year. Nearly 16,000 major surgical procedures are performed annually in the hospital’s 20 major operating rooms. Approximately 3,200 infants are delivered every year.

Highly specialized health services—for example, the burn unit, heart catheterization facilities, neonatal intensive care unit—are easily
The Bureau of Dental Health Education

The Bureau of Dental Health Education is sponsored jointly by the Iowa State Department of Health, which provides personnel, salary, 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 team programs with the public health dental hygienists of the Iowa State Department of Health. These programs include instruction in oral hygiene, good dental health practices, and nutrition as related to dental health. The bureau also supplies dental referral cards to schools to remind parents of the need for regular dental care for children.

Health Sciences Library

The Health Sciences Library serves the combined information and research needs of the colleges of Dentistry, Medicine, Nursing, and Pharmacy, and the Department of Speech Pathology and Audiology. The largest of the depositories in the university library system, the Health Sciences Library contains over 150,000 volumes and receives more than 2,700 periodicals. In addition to providing ample space for these collections, the interior allows for enough reading and study space to 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 fifteenth century) in the John Martin Rare Book Room.
Health Services Research Center
See "Research Activities" section of the Catalog.

Iowa Mental Health Authority
The Iowa Mental Health Authority is a state agency affiliated with the University of Iowa College of Medicine and located at The University of Iowa Oakdale Campus. The primary function of the authority is to provide state-level support for Iowa's 30 community mental health centers, which are private nonprofit corporations. The authority provides consultation, staff development, assistance in information management, standards development and evaluation, and research in support of services for these centers. The authority consults with communities about developing local services, performs liaison and planning activities with other local, state, and federal programs in the mental health delivery system; and provides consultation on federal mental health and substance abuse services through the National Institute of Mental Health.

Oakdale Campus
Located seven miles northwest of the health center, the 105-acre Oakdale campus includes an alcoholism treatment unit, biology and pediatric research laboratories, the Institute of Agricultural Medicine, research animal care facilities, a model office for family practice, a model rural health center, and University House, which provides faculty and student apartments for faculty research and curriculum development. Among the several policy research components of University House are the Health Services Research Center, Gerontology Center, and the Institute of Child Behavior and Development.

Psychiatric Hospital
Part of the University Hospitals system, Psychiatric Hospital contains clinical and research laboratories in neuropathology, biochemistry, and psychology. The electromyographic laboratories serve the entire University of Iowa Health Center.

University Hygienic Laboratory
Laboratory staff members perform a variety of diagnostic, surveillance, training, and consulting functions in such areas as bacteriology, parasitology, industrial hygiene, serology, virology, health physics, radiation chemistry, water and air pollution, drinking water analysis, pesticide and herbicide toxicity, mineral analysis, and disease surveillance. The laboratory provides virological and aerological diagnostic services for The University of Iowa Hospitals and Clinics and Stouden Health Service.

State Services for Crippled Children
At the health clinics conducted annually in communities throughout the state, and at the University of Iowa clinics, State Services for Crippled Children (SSCC) provides Iowa residents under age 21 with diagnosis and evaluation services in pediatrics, orthopaedic surgery, oto-rhino-laryngology, speech pathology, audiology, clinical and educational psychology, dentistry, and ophthalmology. It helps communities sponsor child health centers in which a number of new health programs are conducted. It administers demonstration services on special health problems related to handicaps such as muscular dystrophy, mental retardation, phenylketonuria, and prevention of coronary heart disease; and initiates a University of Iowa graduate training program in audiology and speech pathology.

University Hospital School
A University-affiliated facility dealing with the problems of developmentally disabled children and young adults, the University Hospital School provides services involving medicine, dentistry, nursing, nutrition, speech and audiology, physical and occupational therapy, activity and music therapy, psychology, social work, medical education, physical education, prevocational, and vocational activities.

The hospital school's residential program provides educational and therapeutic services for children judged to require services not available in the local community; the goal of the program is to return the children as quickly as possible to their home communities and schools.

The day program provides special educational, therapy, and functional training for mentally retarded children and young adults who live in the Iowa City area.

The hospital school's training activities include pre- and in-service lectures, workshops, practicums, and seminars for care providers who work in other facilities or community programs.

The school cooperates with the State Developmental Disabilities Council and other state agencies in providing technical assistance for their programs.

The hospital school's Child Development Clinic serves the learning-disabled child, the severely handicapped child and his or her family, and the adult with selected metabolic disorders.

The hospital school houses the University hospitals' genetics and biochemistry laboratories, which it uses 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 programs for persons who can come to the clinic for such service; a summer residential program for children with speech, language-learning, hearing, and/or reading problems; and training for
Iowa City Veterans Administration Medical Center

Medical students and residents receive much of their clinical training in this 336-bed hospital. University of Iowa Health Center facilities based here include laboratories for the transplantation program, highly specialized laboratories in nuclear medicine, and special units for the study of metabolic and gastrointestinal diseases. The Veterans Administration Medical Center also 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 if its teaching is to have the relevance, freshness, and effectiveness expected of a distinguished institution of higher learning.

The University holds that the term "research" applies to creativity in all fields, imaginative originality, whether in the fine arts or in the sciences, is of a common character and significance in the overall intellectual life of the institution.

The office of the Vice-President for Educational Development and Research maintains an overview of the many individual research commitments of the institution and actively promotes, in a variety of ways, the research mission of the University and the educational development efforts of the faculty. This office has an interlocking relationship with the Graduate College, because of the all-University character of the college and the close connection between the graduate programs and research and creative activity.

The University Research Council assists the vice-president for educational development and research in a regular advisory capacity. The council consists of ten faculty members with widely recognized research involvements in basic research or creative activity, one representative of the University staff, and two student members. Faculty members include two each from the physical, biological, and social sciences 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 Medicine and Dentistry) 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 which he or she 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 Microprobe Facility
Located in the College of Dentistry, this facility has potential applications in widely diverse scientific areas, such as metallurgy, mineralogy, paleontology, chemistry, biochemistry, pathology, zoology, physics, and electronics, and holds particular promise in the area of environmental science.

The microprobe facility has an Applied Research Laboratory DMI-5M microprobe equipped with three automated crystal spectrometers and a Tracee Northern TN-3000 solid state detector system. The ability of the instrument to perform chemical analyses of extremely small volumes of material, such as inclusions and particles, permits the characterization of materials at a micrometer scale. The instrument is automated to provide online, corrected quantitative results in the wavelength dispersive, energy dispersive, and combined (EDS-WDS) modes of operation.

Image modes of modest resolution (about 0.1 micrometer) are available for backscattered electrons, secondary electrons, transmitted electrons, sample current, and elemental mapping. A quadrupole mass spectrometer has also been interfaced with the instrument for the examination of specimens which are volatile under the electron beam.

Transmission Electron Microscopy (TEM) Facility
Equipment includes high resolution electron microscopes, an automatic tissue processor, glass knife makers, diamond knives, ultramicrotomes, a digital image analysis system, ultrathin metal evaporators, light microscopes, cameras, lights, and photomicrographic darkrooms. The facility also provides all solutions and supplies necessary for investigations involving ultramicrotomy including specialized staining and embedding techniques, negative staining, metal coating, autoradiography, enzyme-cytochemistry, immune-cytochemistry, and phase contrast. Facility personnel are available to assist with scanning electron microscopy and freeze fracture, and other procedures. A modern library containing texts and reviews of various applications of TEM is also available.

The facility is intended to serve both the experienced and novice investigator and to provide training for those who need it. It is located in the Basic Sciences Building.

Flow Cytometry Facility
A laboratory for flow cytometry is located in the Medical Laboratories of the College of Medicine. The facility's B- D FACSY-IV fluorescence-activated cell sorter has extensive applications in the fields of cell biology, immunology, endocrinology, hematology, and cancer. The flow cytometer causes single cells to flow through a laser beam (argon ion with uv capability) at rates up to 5000 cells per second, fluorescence in one or two spectral regions, or fluorescence polarization, and forward angle light scatter are measured for each cell. Data is presented as two- or three-dimensional plots and can be stored on computer disc memory. The system can also sort viable cells on the basis of any optical signal, and maintain sterility.

Biological support equipment for sample preparation is available within the facility. Many fluorochromes, enzymes, and reagents are provided, along with staining procedures. A tissue culture microscope and a fluorescence microscope with phase are available for sample observation.

Educational tours through the facility are given upon request. Frequent users of the FACSYS-IV will be instructed in data analysis and display, if desired. Consultation with the director concerning flow cytometry as an instrument for projects, or proposals is provided.

Laser Facility
The optical Facility consists of a wide variety of modern instrumentation. In particular, a state-of-the-art CW Argon laser/tunable dye laser system is routinely operated with a linewidth of one ten-thousandth of a reciprocal centimeter. This instrumentation is installed in a new, newly remodeled laboratory which occupies the entire first floor of the southeast wing of the Chemistry Botany Building. It includes a mechanically and thermally stable 40-foot long enclosed optical bench with a variety of work stations for users.

Scanning Electron Microscope (SEM) Laboratory
The SEM Laboratory provides facilities and technical assistance to research programs involving the use of a scanning electron microscope. Located in the Zoology Building, the laboratory is equipped with a JEOL JSM-35C instrument. Rotary cold storage and gas flow lock systems were recently added. A Balzer's freeze-fracture freeze-etch system involving investigations into the organization of biological membranes. The laboratory includes a vacuum evaporator for specimen coating as well as a critical point drying apparatus for biological tissue preparation.

Computing Center
The Gerard P. Weir Computing Center provides research and instructional computing facilities to all students, faculty, and staff of the University. The center maintains systems capable of an expanding range of applications, and provides network connections with off-campus facilities. It has a large number of terminals, both batch and interactive, conveniently distributed around the campus. The center provides educational and consultative services to users. Although the center is an entity distinct from the Computer Science Department, there is an interchange of students, faculty, and ideas between the two staffs.
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, assist in the preparation of budget and other material, and give intellectual 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 the appropriate contact in the prospective donor's office. After an award is made, it provides monitoring and advisory services for matters other than 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 Oakland 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 enrichment.

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 is also able to support research and 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 with similar, interdisciplinary arrangements that foster the acquisition of external support for research, education, and appropriate service. University House also assists the Office of the Vice President for Educational Development and Research in its role as a broker in important, joint-research efforts that serve the public policy concerns of the state government and the people of Iowa.

University House has nearly six thousand square feet of newly furnished space in the Oakland Hospital, including private faculty offices, several conference and project rooms, and a lounge. Secretarial services are available. Located in the same building is a cafeteria, an auditorium, a wire conference room, a copy center, a batch terminal connected to the University Computer Center, a terminal with text-editing capabilities, and a full-time assistant for computer services. Photocopying and book delivery services are also available from Laureate Libraries. Half-hourly Campus service connects University House with the main campus.

In addition as part of University House are the following:

Child Behavior and Development
Activities of the Institute of Child Behavior and Development (ICBD) are focused at this time on the problems of child abuse. Through its Center on Child Abuse, the ICBD provides services and materials to professionals on a regional basis to aid them in diagnosing and treating the problem of child abuse.

Gerontology Project
The purposes of the multidisciplinary, interdisciplinary Gerontology Project is to promote our local development, research, and services which relate to the elderly and their problems.

Health Services Research Center
Organized to foster research, education, and demonstration projects relevant to the health needs of nonmetropolitan areas, the center consists of a multidisciplinary core of scholars drawn from the colleges of Medicine, Dentistry, Nursing, Pharmacy, Education, Engineering, Business Administration; several social science departments in the College of Liberal Arts; University Hospitals and Clinics; and the Veterans Administration Medical Center. These individuals have a mutual interest in improving the health services delivery system in Iowa, the Midwest, and the nation as a whole.

Urban and Regional Research
Primary objectives of the Institute of Urban and Regional Research is to broaden knowledge in the area of urban and regional studies, to enrich the teaching programs in participating departments, and to initiate and carry out interdisciplinary research projects. It pursues these goals through the acquisition of grants and contracts and through other on-campus activities, by providing a liaison between faculty and students in both basic and applied urban and regional research activities.

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

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 context of research at the University:

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Institutes
Dow 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 Entrepreneurial Management
See the "College of Business Administration" section of the Catalog.
Institute for Insurance Education and Research
See the "College of Business Administration" section of the Catalog.
Institute for School Executives
Contact the Division of Educational Administration in the College of Education for information.
Institute of Agricultural Medicine
See "Preventive Medicine and Environmental Health" in the "College of Medicine" section of the Catalog.
Institute of Hydraulic Research
See the "College of Engineering" section of the Catalog.
Institute of Public Affairs
See the "Continuing Education" section of the Catalog.

Centers
Agricultural Law Center
See the "College of Law" section of the Catalog.
Cancer Epidemiology Center
Contact the Department of Preventive Medicine and Environmental Health in the College of Medicine for information.
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 Division of Materials Engineering in the College of Engineering for information.
Center for Research in Interpersonal Behavior
See "Sociology" in the "College of Liberal Arts" section of the Catalog.
Center for Research on Psychological Disorders of Children
See the "College of Medicine" section of the Catalog.
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.
Diabetes Center
See the "College of Medicine" section of the Catalog.
Health Services Research Center
See "University House" in this 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.
Statistical 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
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.

Lipid Research Clinic
Contact the Department of Internal Medicine in the College of Medicine for information.
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 reflects 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 of the Division of Fine Arts in the College of Liberal Arts, together with the Museum of Art, E. C. Mabel Theatre, Capp Reclining Hall, and Harper Hall in the School of Music, and Hancher Auditorium, the center’s newest and 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 1926. Major additions were added 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 Drewelow, 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 work 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 1900s, Owen and Leone 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 1918 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 40,000 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, and African and pre-Columbian art.

The Stanley Collection of African sculpture, currently on extended loan to the museum, is a promised gift from Max and Betty Stanley of Muscatine. The addition of this collection gives the museum one of the leading university-based African art collections in the country.

The Print Study Room houses more than 2,000 prints representing major artists. The Lasansky Room houses a collection of prints and drawings created by printmaker Mauricio Lasansky, longtime professor of art at the University.

University Theatre

University Theatre houses the Division of Dramatic Art of the Department of Communication and Theatre Arts. It is the home of E. C. and Mabel Theatre. The traditional setting for many major University Theatre productions each year, Mabel Theatre seats 477.

More than 200 stage and crew members work on student productions, often as an extension of their coursework requirements.

Khaner Auditorium has added a vast new stage and highly sophisticated technical equipment to the wide range of University opportunities in stage production.

The School of Music

The School of Music in the Department of Communication and Theatre Arts provides production management, design, and technical direction for dance, opera, and musical productions produced by the Iowa Center for the Arts in cooperation with the School of Music and the dance division in the Department of Physical Education and Dance. The Playwrights Workshop, one of the three distinguished writing workshops in the Department of English, is a joint venture with the Department of Communication and Theatre Arts.

School of Music

Opened in 1971-72, the new home of the School of Music was designed for spaciousness and convenience. Its broad corridors lead from rehearsal rooms to two recital halls and to the stage of the Haner Auditorium.

In a given year, faculty artists and the many student ensembles of the school present about 100 major concerts, plus an additional 270 to 300 student vocal and instrumental recitals.

Clapp Recital Hall, with its hand-crafted Casavant tracker organ, seats 720 for public concerts. The 200-seat Harper Hall is both a classroom and the setting for many recitals. The school's largest ensembles (symphony orchestra, bands, and choir) perform regularly in Haner Auditorium.

The school has produced such artists as Charles Ives, a major composer of the 20th century, and many others have studied there including Leonard Bernstein, a composer and conductor.

Khaner Auditorium

Khaner Auditorium, which opened in 1972, is a regional cultural resource of the first magnitude. It seats an audience of 2,000. Its first few seasons, the auditorium hosted audiences totaling more than a million people.

In addition to performances by the various units of the Iowa Center for the Arts each year, leading artists from throughout the world appear on the Haner stage—solosists, ensembles, theater and dance companies, major symphony orchestras, and ethnic companies from other nations and cultures. For such stellar attractions, nearly half the Haner audience are students of the University, who have priority in the purchase of tickets, at reduced prices. Non-student patrons regularly attend auditorium events from a wide region in Iowa and western Illinois.

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

For students of the various theater arts, the auditorium has its own black box and costume shops, nearly 50 sets of rigging for scenery changes, and one of the most sophisticated lighting control and sound systems in the western United States. For music students, Haner is an on-the-premises concert hall.

Two electronic music studios provide a wide range of technical capability for creative audio-musical forms. In Video/Laser III, the school has the most advanced laser deflection system of any university, utilizing laser beams in brilliant colors to produce visual analogues to sound. Outstanding recording facilities link the various performance spaces of the School of Music/Haner Auditorium complex with a central recording studio in the School of Music.
The stage itself is an uncommon educational resource. Its proscenium is 70 feet wide. With its adjacent wings, the stage area is 175 feet long, 55 feet deep, and eight stories high. Mobile units of a concert shell may be quickly installed on stage for various concert requirements.

Across the back of the auditorium’s main floor, sound-isolated viewing rooms make it possible for small class groups to observe and discuss performances in progress.

Hancher Auditorium refills a new dimension in the University's educational and cultural services to its students and to the people of Iowa.

Arts Center Outreach

Cultural projects and programs which utilize the talents of faculty or student artists and other resources of the Iowa Center for the Arts are available to Iowa communities through the Arts Outreach Program. Designed to reach new audiences and to serve special constituencies (schools, centers for senior citizens and the handicapped, service organizations, special interest groups, etc.), this program is intended to share the University’s cultural resources as widely as possible throughout the state.

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

Dance

The University of Iowa Dance Company is centered in the dance division of the Department of Physical Education and Dance. The company appears in its own productions during the year and participates with other units of the Iowa Center for the Arts in interdepartmental projects and programs. The company is enriched by the frequent campus visits of professional dancers, choreographers, and leading dance companies of this and other countries. The professional visitors come not only to perform but often to provide lecture demonstrations and classes.

Broadcasting and Film

The Television Center and the studios of radio stations WHO-HCPS are key classroom and laboratories for students in the broadcasting and film division of the Department of Communication and Theatre Arts. The major community serves as the “on-instruction” 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 reading their works in 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.

Windover Press

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

The Windover 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 companions involve all of the major publishers in the country.
General Services

Children's Reading Clinic

The Children's Reading Clinic in the University of Iowa College of Education trains classroom teachers, supervisors, and counselors to assess the reading abilities of school-age children, and to recommend and use instructional materials which are suited to their needs and interests.

During the academic year the clinic teaching program includes practicums in Iowa City schools and an on-campus diagnosis and treatment center. During the summer the clinic is in the Wenden Johnson Speech and Hearing Clinic, where the staff provides reading instruction for children who attend the Summer Residential Program for therapy in speech, hearing, and reading. Student clinicians do all Children's Reading Clinic teaching under the close supervision of clinic staff members.

International Education and Services

The Office of International Education and Services (OIES) is the focal point for University international education activities. It works in the areas of international studies, international educational exchange, and technical assistance.

The OIES seeks to promote development of and cooperation among the various aspects of international studies—foreign language and area studies, comparative and topical studies, and foreign language departments. It also assists faculty and students seeking grants or fellowships for study or research that has an international perspective.

The OIES seeks to encourage the development of formal linkages between University of Iowa departments and programs and their counterparts in foreign institutions by means of technical cooperation and faculty exchange programs.

The liaison officer for the Midwest Universities Consortium for International Activities (MUCIA) is located in the OIES and serves to involve The University of Iowa faculty in MUCIA activities.

Foreign student advisers in the OIES provide assistance to foreign students, faculty members, and professionals on immigration and other matters relating to international educational exchange. The International Center, a facility operated by the OIES, is open to all University and Iowa City community members who have international interests. Facilities and programs are designed to encourage the interaction between people of all cultures.

Additional OIES activities involving students are described in the Catalog section on "Student Services."

Museum of Natural History

To meet the needs of the general public and the various departments of the University, the Museum of Natural History provides a repository and the proper care for specimens which come to the University either by gift or through the efforts of its own collectors. The museum faculty also designs and executes new exhibits of educational value and offers instruction in the conceptual and technical phases of exhibit preparation and the general operational procedures of small science museums.

Habitat exhibits of North American mammals include the bison, antelope, mountain lion, moose, and beaver. The Lewis Island Cyclorama is a large and well-known bird habitat exhibit comprising a complete representation of a bird island of the Hawaiian group.
Other habitat exhibits include the Bering Sea, Louisiana Swamp, Fall Migration, and Canes on the South Dakota Prairie. The canoe exhibit includes both the sandhill crane and the rare 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 the arthropods, mollusks, echinoderms, and coelenterates. Ethnological exhibits in the museum present materials from many parts of the world, Indian and Eskimo materials, including beadwork 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 replicas of fossil remains from Africa, Asia, and Europe.

Several displays relate to the geology of Iowa and include typical fossil specimens.

Old Capitol

Old Capitol is the central landmark and symbol of the University. It was the capitol of the Territory of Iowa from 1842 until 1846 and the capitol of the State of Iowa from 1846 until 1847, when the government moved to Des Moines and gave the "old" capitol to the University as its first 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 1880 to 1975, when the president's office was relocated to make way for the restoration of Old Capitol as a historic site. Most of the rooms were returned to the 1840s and 1850s. Two were restored to the 1820s, to represent the University years. Old Capitol was reopened in 1979 as a "living museum." Guided tours are conducted daily without charge.

Overseas Study and Travel Abroad

The Office of Overseas Study and Travel Abroad helps faculty members design study abroad programs, facilitating arrangements for program publicity, transportation, orientation, and logistics. The office offers individual counseling on all aspects of travel, from planning to completion, and provides guidelines and programs that are specific for the University's community. The office maintains an extensive resources collection which includes foreign university catalogs, information on special collections and libraries overseas, lists of faculty and undergraduate and graduate programs at foreign universities, and study abroad programs offered by domestic and foreign institutions of higher learning. The office assists students in selecting study abroad programs to complement their on-campus academic programs and to secure correct credit arrangements.

University Relations

The Office of University Relations seeks to foster understanding of, participation in, and support from University affairs and activities through effective two-way communication within the University community and between the University and its key publics. The office handles management responsibility for the Office of Public Information, the Department of Publications and Printing Services, and the University of Iowa Press. In addition, the office of University Relations seeks to maintain an effective information program through use of internal and external media, and provides a liaison between the central administration and appropriate University and governmental groups. University Relations publishes The University of Iowa Spectator, Faculty and Staff Newsletter (FYD), Campus Correspondent, Calendar of Events, and Programme; provides campus tours and other services for University visitors and guests; provides copy and photos for some University publications; and serves as the executive office of the Parents' Association.

Public Information

The Office of Public Information includes Humanities/Science News Service, Health Center Information, Communication, Men's Sports Information, Women's Sports Relations, Art Center Relations, and Broadcast News Services. These units supply news, photos, and information to print and electronic media, gather and prepare informative material for special and general interest periodicals, help prepare special University publications; answer requests for information; and assist writers, photographers, and broadcasters who visit the campus.

Publications and Printing Service

The department is responsible for providing services to meet official printing and publications needs of the University. It staff provides assistance to departments and campus organizations in planning, editing, and designing publications. Printing Service is the production arm of the department, with a printing plant and bindery. Copy centers located strategically about the campus provide quick, inexpensive reproduction service. The department also oversees Campus Stores, an on-campus distribution agency which sells manuals, lab notebooks, and other special/instructional materials created by the faculty. The department is responsible for University compliance with the printing regulations of Iowa, including provision for obtaining competitive bids on printing not done in the University Printing Service.

The University of Iowa Press

The University of Iowa Press was established to publish significant results of scholarly research. The imprint is controlled by the University editorial 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 20 intramural sports and recreational activities for all interested University students; offers a wide range of recreational lesson programs in such activities as karate, tennis, golf, yoga, aerobics, and gymnastics; and provides informal activities for students, faculty and staff members, and their spouses and families. Activities include basketball, badminton, volleyball, squash, tennis, swimming, handball, paddleball, racquetball, aquatics, canoeing, golf, archery, weight training, billiards, spaceball, tennis, fencing, and juggling. The division's Touch the Earth Outdoor Program includes such activities as rafting, parachuting, hiking, bicycle trips, backpacking, fishing, cross-country skiing, wildlife research, winter camping, kayaking, canoeing, and horseback riding. Bicycles, camping equipment, toboggans, and cross-country skiing equipment are also available at a minimal renting fee.

The University of Iowa Alumni Association

The principal agency through which Iowa students continue their identity with the University after they leave the campus is the University of Iowa Alumni Association. The association was organized in 1887. Its current membership includes University graduates and former students throughout the world. Its continuing objectives are to maintain ties between alumni and the University; to implement programs of service to alumni; to strengthen public recognition of the University as an institution vital to the stability and welfare of the state and the nation; and, through organized alumni effort, to serve the University in strengthening its programs in teaching, research, and public service. The association publishes the Iowa Alumni Review, a bimonthly magazine for association members.

The University of Iowa Foundation

The University of Iowa Foundation was organized in 1956 to help the University obtain the greatest possible educational benefit from private giving. It raises funds for this objective through three major programs: annual giving, capital campaigns, and planned or deferred giving.

The foundation is a private, nonprofit corporation empowered to solicit and receive gifts and bequests, to accept from subject to the conditions imposed on them, and 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 mono 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, non-teaching and nonstudent employees of the University. The University Personnel Office is responsible for the administration of the Board of Regents Merit System and the Unemployment Compensation Act. It also participates in certain aspects of the academic personnel program, and in payroll record keeping and collecting personal record data for both faculty and staff employees.
The University’s Main Library and its 12 departmental libraries contain approximately 2.1 million volumes. About two-thirds of this collection is in the Main Library.

The Art Library contains approximately 51,700 volumes: Binary-Chemistry 59,100; Business Administration, 16,300; Education-Neurology, 117,300; Engineering, 49,350; Geology, 28,900; Health Sciences, 160,800; Library Science, 10,200; Mathematics, 31,000; Music, 85,600; Phonics, 31,600; and Zoology, 27,300.

The Law Library, which is administered by the College of Law, contains 327,555 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 Leigh Yawkey Collection, brought together by Luther A. Brewer of Cedar Rapids, Iowa, is considered one of the most complete collections in the world. It contains nearly 2,000 manuscripts and manuscript letters written by Hunt or to him by his many famous literary friends, 100 association volumes, and 600 additions of Hunt’s writings.

The Mark Ramsey Memorial Collection of approximately 3,700 volumes is particularly rich in deluxe editions, including many superb bindings made especially for Mrs. Ramsey.

The French Revolution Collection includes more than 8,000 political pamphlets, chiefly from the years 1788-1793, supplemented by numerous French newspapers and government publications of the time.

The John Springer Collection on typography, given to the University by a long-time Iowa City printer, includes 1,800 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 originals of nearly six-thousand cartoons in which, for more than 40 years, Ding recorded and commented on the economic, political, and diplomatic affairs of the United States. His cartoons are virtually a pictorial history of this country during the first half of the twentieth century. A subject index to the collection enhances its usefulness for research and research.

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

The "X" Collection is a gathering of early race, or special works on diverse subjects, including books of the eighteenth and sixteenth centuries, early American literature, and French literature.

Publications: private press books, and selected modern first editions.

The Manuscript Collection includes more than 10,000 individually cataloged letters and manuscript items of English and American authors or historical figures, principally of the nineteenth and twentieth centuries, in addition to 365 inventoried collections of papers, diaries, and correspondence files relating to midwestern economic, political, and agricultural history.
Other special collections include the Harvey Igham Collection of books dealing with the American Indian; the Levi O. Leonard Collection of manuscripts and documents dealing with railroading in the Midwest; the History of Hydraulics Collection; the Edwin Ford Piper Collection of ballads and folksongs; the Chautauqua Collection, which contains several thousand letters and business documents descriptive of the Chautauqua movement; the Blunden Collection of poetry, biography, criticism, manuscripts, and letters relating to the contemporary English poet, Edmund Blunden; the Iowa Authors Collection, the Map Collection, containing more than 175,000 maps and indexed aerial photographs and nearly 2,000 atlases, gazetteers, and related reference items; and the University Archives.

The John Muir Rare Book Room in the Health Sciences Library houses a collection of approximately 1,500 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.
Peoples 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 physical, biological, 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 nourishes 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 kind of flexibility and adaptability mentioned here are built upon an understanding of other cultures and languages, the social and political institutions in American society, communication behavior, and the physical and biological world about us. A liberal arts education includes something called a "general education" because students receive general preparation for the opportunities and problems they will encounter throughout their lives. This approach to education assumes that, because we cannot 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 its combination of major and general educational requirements.

Schools and Divisions

There are seven schools and two divisions in the College of Liberal Arts. The Division of Fine Arts includes 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. The School of Letters is a federation of the departments of Classics, Asian Languages and Literatures, English, French and Italian, German, Linguistics, Russian, Spanish and Portuguese, and Communication and Theatre Arts; the programs in Afro-American Studies, American Studies, Comparative Literature, and Modern Letters; the International Writing, Translation, and Writers workshroys; and The Windhover Press. There are also schools of Journalism and Mass Communication, Library Science, Religion, and Social Work.

Liberal Arts Advisory Office

The Liberal Arts Advisory Office functions as an integral part of the Office of the Dean 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 which will best prepare the student to pursue his or her life goals. Academic advisors are assigned by the Liberal Arts Advisory Office. Students who have declared majors are assigned advisors from their major departments; students who have not declared majors are assigned advisors from the Undergraduate Academic Advising Office. Residents in preprofessional programs are assigned...
special advisors from the appropriate professional areas. Students should go to the Liberal Arts Advisory Office to change academic advisors; declare or change majors; and obtain information and advice about graduation requirements, the Bachelor of General Studies and other degree programs, the College-Level Examination Program (CLEP), pass-fail, satisfactory-fail, the second-grade-study option, deadlines for various administrative actions (such as dropping or adding courses, cancelling registration), probation, dismissal, re-enrollment, academic discipline, and any other academic matter.

Degrees Offered
The College of Liberal Arts offers the 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 of Liberal Arts 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.
- Chemistry—B.A., B.S.
- Classical—B.A.
- Communication and Theatre Arts—B.A.
- Communication Studies—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.
- General Science—B.A., B.S.
- 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 Communications—B.A., B.S.
- Latin—B.A.
- Letters—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.S., 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.
- 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.
- Zoology—B.A., B.S.

Interdisciplinary Programs

The programs briefly described below are fully described in the Catalog. They are presented in alphabetical order in this section of 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 pre-African-American heritage of African-Americans in 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 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, those 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 in programs leading to a B.A., M.A., or Ph.D. in American 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 these problems and their interrelationships, and to focus on one set of problems for more in-depth analysis. The four problem areas are war, peace, and security; development; environmental concerns and global resources; and cross-cultural understanding.

Latin American Studies
Students may supplement their undergraduate majors by earning either certification or a minor in the Latin American Studies Program. Focusing on the history, politics, social organization, economy, art, and literature of Latin America, the program draws its faculty from four primary cooperating
departs—Anthropology, History, Political Science, and Spanish and Portuguese—and from several related disciplines. The program is designed to enhance students' qualifications for a wide range of career opportunities in business, communications, government, bilingual-bicultural education, secondary education, community organization, and international agencies. It also provides background for advanced academic or professional degree work.

Literature, Science, and the Arts

The Program in Literature, Science, and the Arts offers a group of team-taught discussion courses 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 define issues and problems and work them through. An I.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 Program

The Women's Studies Program is a multidisciplinary program in the liberal arts which is engaged in developing a body of knowledge about women in the humanities and social sciences and in the university community. The term "women's studies" does not denote segregation or separatism 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 supplements neglected areas of study in the existing curriculum, raises provocative intellectual questions, and widens the quest for truth about the human condition.

Minor

Students graduating from the College of Liberal Arts may earn a minor or minors in any degree-granting department. An approved program in the college outside of their major department and a notation of the minor will be entered on the student's permanent record.

Requirements for a minor are:

A minimum of 18 semester hours must be taken in the minor area;

At least 12 of the 18 must be taken in advanced courses at The University of Iowa;

No course accepted toward the minor may be taken pass-fail;

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

And the minor is awarded only at the time the student receives the bachelor's degree.

Students may apply for minors at the same time that they apply for a bachelor's degree. If eligible, the notation of the minor is placed on the student's grade report.

If a student, who already has a bachelor's degree from The University of Iowa, and is in the graduate school, applies the requirements for a minor, he or she may apply to the registrar to have the notation regarding the minor placed on the permanent record.

When a student applies for a minor, the application-for-degree form filed with the registrar needs the signature of the major advisor.

The degree-granting programs in early childhood education, elementary education, health occupations education, special 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.

Some programs in the college which do not offer undergraduate degrees have been permitted by the educational policy committee to offer minors. Information about program approval is available in departmental offices.

Students who earn bachelor's degrees in interdepartmental programs, such as general science degrees, cannot earn minors in areas falling within the major degree field.

The decision of what is an advanced course is left up to the minor department. Many departments have prepared lists of advanced courses. Students seeking information about courses acceptable for minors should contact the minor departmental office or confer with their major advisor. If departments have not designated any courses as advanced courses, all 100-level courses will be accepted as advanced courses.

The minor may support or relate directly to the student's major. In other cases, the minor might allow a student to follow an entirely different and separate interest from his or her major. Students should seek help from their major advisors in planning minor programs.

For further information about the minor program in the College of Liberal Arts, contact the Liberal Arts Advisory Office.

Minor in Business Administration

Students in the College of Liberal Arts may seek a minor in business administration. Requirements include business courses as well as business courses. The courses listed below satisfy all requirements. Interested students should complete an application form for the first semester of these courses before applying for admission to the business minor program.

Computer programming course 3 s.h.
Course in mathematics 22B or higher 3 s.h.

Course in statistics 225B or higher 3 s.h.

6E:1-2 Principles of Economics 8 s.h.

6A:1 Introduction to Financial Management 3 s.h.

6A:2 Introduction to Managerial Accounting 3 s.h.

*BM:31 Introduction to Marketing 3 s.h.

*8P:15 Introductory Financial Management 3 s.h.

*GL:81 Administrative Management 3 s.h.

*GL:47 Introduction to Law 3 s.h.

*Must be taken junior or senior year.

Students complete the remaining courses following their admission to 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. Admission to the program is limited, and meeting minimum standards does not ensure admission.

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

Liberal Arts Minors for Business and Nursing Students
Undergraduate students in the College of Business Administration and College of Nursing at The University of Iowa may earn minors in their colleges by satisfying College of Liberal Arts requirements for minors.

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 advisors to students preparing for the certificate. After selecting an area or country of interest, students wishing to earn the certificate will be guided by the appropriate advisor 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, literature, political science, or other fields offering international studies.

Programs leading to the certificate will include at least 18 semester hours in coursework related to the chosen country or area. In addition, students must fulfill the foreign language requirement for the B.A. in a language appropriate to the chosen country or area. A student who successfully completes a Foreign Studies Certificate program designed by the appropriate departmental chair receives the Foreign Studies Certificate with the appropriate department's name.

Interested students should consult the chair of the appropriate department:
Asian Languages and Literature (India, China, or Japan)
Classics (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)

Academic Career Clusters
The College's Academic Career Clusters Program is designed to help students select majors and/or minors or to build individualized degree programs consistent with their general career goals. All academic advisors in the College have copies of the Clusters Source Book containing sample clusters and plans of study in areas such as corporate communication, publishing, arts management, international affairs, environmental professions, personnel administration, and so on. Each cluster contains lists of courses from throughout the University, organized in terms of competencies required for career areas. Students and advisors can use the cluster designs to develop plans of study within the context of a variety of academic degree programs.

Specializations within 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 Department of Mathematics, and fashion merchandising is 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 bachelor's degrees: studio emphasis, art history emphasis, and art education; music education, music therapy, composition/theory major, and applied major.

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

For more information on specializations within and between programs, see the program descriptions in this Catalog; the Clusters Source Book; and advisors in the appropriate departments.

Honors Program
The Honors Program is a college-wide plan for exceptionally promising students. Honors students are assigned to special sections in general education courses. Those whose major departments offer honors curricula have opportunities to enhance their studies in honors seminars, independent research, and other special activities, and to earn the baccalaureate degree "with honors." Entering freshmen whose records indicate they would benefit from the Honors Program are invited to participate; however, the program is open to all interested and qualified students.

Preprofessional (Joint) Programs
Joint programs leading toward graduation from the College of Liberal Arts may be used with The University of Iowa College of Medicine, The University of Iowa College of Dentistry, any accredited medical or dental college in the United States which offers advanced degrees, and The University of Iowa College of Engineering.
To be eligible to use a joint program with the above colleges toward graduation from the University of Iowa, a student must have completed all of the following: prior to going to a "incidental" college, earned at least 94 semester hours; satisfied skills, core, and for language requirements; met the requirement for the major; and satisfied the residence requirement of the college.

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

To use a joint program with any college except The University of Iowa, a student, during his or her last semester in residence at the University, should apply to the graduate analysis section of the Office of the Registrar 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 University of Iowa degree.

With The University of Iowa College of Engineering, students must meet all the College of Liberal Arts requirements, plus those of a major department, and then complete degree requirements for a major in the College of Engineering. This is a five-year program (three in liberal arts and two in engineering). The student receives two degrees at the time or he or she completes the engineering program.

Admission Requirements

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

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 has the proper subject matter background, is in the upper one-half of his or her graduating class, and meets specific curricular requirements, will generally be admitted upon certification 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 admissions officer, may be admitted unconditionally, admitted on probation, required to enroll for a trial period during a preceding summer session, or denied admission.

A graduate of an accredited high school in another state will be excluded 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.

A graduate of a nonapproved high school must submit all data required above, and must take examinations which demonstrate his or her general competence to do successful college work.

An applicant who is not a high school graduate 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.

Undergraduate Transfer Students

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 Credits Given By Educational Institutions published by the American Association of Collegiate Registrars and Admissions Officers will be followed for schools not regularly accredited.

Each applicant must submit an official transcript bearing 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 of 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, and must not be 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 on probation.

In general, transfer applicants under academic suspension from the last college attended will not be considered for admission during the period of suspension, or, if suspended for an indefinite period, will not be considered until 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 considered for admission until a clearance and a statement of the reason for suspension are filed from the previous college. When it becomes proper to consider an application from a student under suspension, the college must take into account the fact of 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 College of Liberal Arts may refuse to recognize credit from a nonaccredited college, or may admit the applicant on a probationary basis and provide a means for the validation of some or all of the credit. The validation period shall not be
undergraduate study may be expected to meet the minimum requirements outlined for insitute transfer students. Foreign transfer students will have their proficiency in English evaluated by the above manner as entering freshmen. Those who are initially evaluated as proficient will fulfill the minimum standards for admission. If the student is not proficient, enrollment in ESL courses is required until proficiency is demonstrated. Like foreign applicants, immigrants (permanent aliens) from typically non-English-speaking backgrounds may be required to take the TOEFL, or other suitable measures of English proficiency.

Nondegree Candidates
Under special circumstances, students may be admitted to the college as nondegree candidates. Such admissions may be for career sessions or unlimited in length. Reenrollment by such students may be contingent on University of Iowa grade. Courses taken by students in these categories cannot be used toward satisfying the residence requirements for graduation from the College of Liberal Arts.

Requirements for Degrees
Credit Requirements for Graduation
Graduation from any College of Liberal Arts baccalaureate program requires a minimum of 124 semester hours of college credit, of which the last 30 must be earned in residence in the college. A minimum of 18 semester hours of credit with a grade of 'P' (pass) according to classification at the time of admission will be permitted in addition to credits earned by examination. Transfer students admitted to the University with more than 18 semester hours of grades are not eligible to take any more courses pass-fail (P/F). No more than 30 semester hours of credit earned in correspondence courses may be applied toward college requirements for baccalaureate graduation.
Semester hours for courses completed with nonpass marks do not count toward the total requirement for graduation, but do count in the computation of the grade-point average. After a student has earned 62 semester hours of college credit from all sources, no more credit can be accepted by transfer from a junior college toward meeting the 124 semester hours needed for graduation from the College of Liberal Arts.

Course Requirements
Except for the Bachelor of General Studies and Bachelor of Liberal Studies degrees, the basic program for baccalaureate graduation from the College of Liberal Arts consists of the college's general requirements, the student's area of concentration or "major," and electives. General requirements include basic skills (literature, economics, and physical education); historical-cultural, literature, natural science, and "intellectual" science cores; and foreign language.

The student's major department determines requirements to the student's major. The student chooses elective courses with the assistance of his or her academic advisor. Typically, the student takes about one-third of his or her coursework in each of the three groups, focusing on the general requirements for the first two years, the area of concentration during the junior and senior years. Students admitted from accredited two-year colleges who hold the A.A. or A.S. degree at the time of the first enrollment at The University of Iowa will be considered to have met all the college course requirements except the foreign language requirement. A minimum of 20 semester hours of credit must be earned for transfer in order for the acceptance of the A.A. or A.S. degree.

Foreign students who have attended a U.S. college or foreign college or both before enrolling in Iowa for undergraduate study may be expected to meet the minimum requirements outlined for insitute transfer students. Foreign transfer students will have their proficiency in English evaluated by the above manner as entering freshmen. Those who are initially evaluated as proficient will fulfill the minimum standards for admission. If the student is not proficient, enrollment in ESL courses is required until proficiency is demonstrated. Like foreign applicants, immigrants (permanent aliens) from typically non-English-speaking backgrounds may be required to take the TOEFL, or other suitable measures of English proficiency.
Rhetoric Skills
The College of Liberal Arts requires all entering undergraduate students to enroll in rhetoric coursework each semester until they achieve a satisfactory level of competence in oral and written communication; proficiency in investigating, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of other writers and speakers; and proficiency in the responsible use of various sources of information and ideas.

Students are originally assigned to rhetoric courses on the basis of American College Test scores. Most entering freshmen are assigned either to 10:1-2 Rhetoric, a two-semester, 8-semester-hour sequence, or to 10:3 Rhetoric, a one-semester, four-credit course.

Students initially assigned to and registered for 10:3 Rhetoric, 10:4 Rhetoric, or 36C:25 Principles of Speech Communication may attempt to satisfy all or part of the rhetoric requirement, and earn 2 or 4 semester hours of credit, by taking the writing and/or speech tests offered during the first week of the semester. Rhetoric classes begin with student performances which serve as placement indicators. Students in 10:1 who demonstrate above average reading speed and comprehension and above average writing skill may be advised to switch to 10:3, for example.

Students whose early work indicates a need for individualized instruction beyond their classwork may enroll for noncredit work in the reading and/or writing labs offered by the Rhetoric Program. Some students may be advised to switch to 10:8, a one-semester, two-credit course of individualized instruction in reading, and/or 10:10, a one-semester, two-credit course of individualized instruction in writing. No more than 8 semester hours of rhetoric credit may be counted toward baccalaureate requirements.

Transfer students may, meet the rhetoric requirement by completing 10 semester hours of transfer credit in rhetoric, as appropriate, transferable to Louisville.

Mathematics Skills
The general requirement in mathematics can be met by at least two and one-half years of high school mathematics, or a minimum score of 23 on the mathematics section of the American College Test, or completion of the University course 22M:1 Basic Mathematics Techniques, or a mathematics, statistics, or computer science course taken in the Division of Mathematical Sciences.

Transfer students may meet this requirement with transfer credit in mathematics, statistics, or computer science.

Physical Education Skills
This requirement may be met with four 1-semester-hour physical education skills courses, or by satisfactory performance in any of the comprehensive physical educational skills tests given at announced times each semester. The student may receive up to 4 semester hours of ungraded credit for successful completion of the tests.

Freshman who take the test but fail it, must register for physical education skills courses for at least the semester before attempting the test again. Students who have not passed the test before the beginning of the sophomore year must register for physical education skills coursework at that time; those who wish to, may take the sophomore course for credit. No more than 4 semester hours of credit in physical education skills may be counted toward a baccalaureate degree.

Students who have passed their twentieth birthday prior to their first registration in the University are exempted from the physical education skills requirement.

Students who present evidence of having completed a basic training program in some branch of military service may be excused from the requirement.

Transfer students may meet the requirement with 4 semester hours of transfer credit in physical education. Transfer students admitted to the University with more than 40 semester hours of transfer credit are excused from the requirement. Transfer students transferring less than 4 semester hours of physical education credit and a total of less than 40 semester hours of credit must complete the 4-semester-hour physical education requirement at The University of Iowa.

The instructional program in physical education skills provides for a wide variety of activities. The program also gives the student an opportunity to correct physical defects which respond to therapeutic exercises.

Courses with which the student can meet the requirement are:

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Education Skills 1 (PE)</td>
<td>1.0</td>
</tr>
<tr>
<td>Physical Education Skills 2 (PE)</td>
<td>0.5</td>
</tr>
<tr>
<td>Physical Education Skills 3 (PE)</td>
<td>1.0</td>
</tr>
<tr>
<td>Physical Education Skills 4 (PE)</td>
<td>1.0</td>
</tr>
<tr>
<td>Physical Education Skills 5 (PE)</td>
<td>1.0</td>
</tr>
<tr>
<td>Physical Education Skills 6 (PE)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Core Requirements
There are four core areas: historical-cultural studies, literature, natural science, and social science. All students may satisfy the core requirements by earning a total of 36 semester hours of credit in core courses offered in that area, or in departmental courses approved for core purposes.

These requirements may be met in part or totally by satisfactory performance in approved tests from the College-Level Examination Program (CLEP). With the approval of their major department, a student may be excused from the core requirement in the area of his or her major.

Except in literature, core courses may be taken as electives. No core courses or departmental courses seem to must
Transfer students may meet this core requirement with 8 semester hours of transfer credit in core-equivalent courses in astronomy, biochemistry, biology, botany, chemistry, geology, mathematics, microbiology, physics, and zoology, or with a combination of transfer and UI natural science core courses totaling 8 semester hours.

1120 Intro. to Biology 4 s.h.
Human evolution, reproduction, genetics, and other integrated functions of our biological ancestors that cells to transfer; our place in problems with our environment. Lecture, laboratory, discussion. Independent of 1121.

1121 Biology and Evolution 4 s.h.
A survey of diversity of evolution and of diversity of living things, their patterns or nature, their organization in ecological systems, and dynamics of evolutionary processes. Lecture, laboratory, discussion. Independent of 1120.

1122 Earth History and Resources 4 s.h.
Principles of geology, mineral resources, evolution, plate tectonics, major ecosystem, earthquakes, droughts, floods, and other geological problems. Literature, laboratory. Open to students who have had 1121, 1213, or 152.

1214 Nat. & Ind. Physical Environment 4 s.h.
Issues of politics, processes that create natural environments, our major resources and problems, environmental policy. For non-science students. Lecture, laboratory. Open to students who have had 120 or 151.

1125 Chemistry and Physics of the Environment 4 s.h.
Chemistry and physics of matter at our planet; earth, water, and life processes; the physics of planets by non-physics and provides knowledge of basic environmental principles. Lecture, laboratory, discussion. For environmental science and elementary level. For non-science students. Lecture, discussion. Same as 265.

1128 Technology and Man 4 s.h.
A historical and philosophical examination of advances in technology and related technology which influence our daily lives. Topics include energy production, plastics and metals, and food additives, chemicals in agriculture and the environment, and the social impact of technology on students with credit in 41, 42, 415, or 416.

Departmental Options
Any of the courses listed below may be used in any combination (except as indicated) with any other courses on this or the above core list to satisfy the natural science core requirement. For descriptions of the departmental courses, see the appropriate departmental section of the Catalog.

Biochemistry
211 Introduction to Botany 4 s.h.
211 Plant Diversity 4 s.h.
211 Ecology of the Local Flora 4 s.h.
Chemistry
417 General Chemistry I 3 s.h.
413 Principles of Chemistry I 3 s.h.
48 General Chemistry II 3 s.h.

419 General Chemistry Laboratory 2 s.h.
414 Principles of Chemistry II 3 s.h.
416 Elementary Chemistry Laboratory 2 s.h.

General Science
(Only for students majoring in elementary, special, or early childhood education)
Students with no college science background:
97-106 Science Foundation I 8 s.h.
220-10 Theory of Arithmetic 3 s.h.
Students with 4 or more semester hours of college science background:
97-104 Science Foundation II 3 s.h.
220-00 Theory of Arithmetic 3 s.h.
97-105 Introduction to Geology 4 s.h.

Mathematics
220-10 Fundamentals of College Mathematics I 4 s.h.
220-11 Fundamentals of College Mathematics II 4 s.h.

Physics and Astronomy
29-11 College Physics or
29-17 Introductory Physics I 4 s.h.
29-12 College Physics or
29-18 Introductory Physics II 4 s.h.
29-0 Basic Physics (may not be combined with any other physical science option)
29-00 Modern Astronomy 4 s.h.
29-01-02 General Astronomy 8 s.h.
29-00 General Astronomy 4 s.h.

Zoology
37 Principles of Animal Biology 5 s.h.
Social Science Core
The social science core requirement may be met with 8 or more semester hours of credit earned in any combination of courses listed below. For course descriptions, including prerequisites, see the appropriate departmental section of the Catalog.

The social science core option for transfer students is 8 semester hours of transfer credit in core-equivalent courses in anthropology, economics, geography, political science, psychology, and/or sociology, or a combination of transfer and UI social science core courses totaling 8 semester hours.

Anthropology
1133 Introduction to the Study of Culture and Society 4 s.h.
1130 Anthropology and Contemporary World Problems 4 s.h.

Economics
081 Principles of Economics 4 s.h.
082 Principles of Economics 4 s.h.

Geography
41-10 Introduction to Human Geography 4 s.h.
10-01 Natural Environment and Man 4 s.h.
41-10 Introduction to Social Geography 4 s.h.
19-10 Natural Environmental Issues 3 s.h.
41-30 Introduction to Economic Geography 3 s.h.
43-30 World Cities 3 s.h.

Linguistics
109-11 Language and Society 4 s.h.

Political Science
20-10 Introduction to American Politics 4 s.h.
30-02 Introduction to Politics 4 s.h.
30-110 The American Political System 4 s.h.
30-30 Introduction to Political Thought and Political Action 4 s.h.
30-30 Introduction to Comparative Politics 4 s.h.
30-50 Introduction to Political Behavior 4 s.h.
30-30 Introduction to World Politics 4 s.h.

Psychology
31-11 Elementary Psychology 4 s.h.
31-3 General Psychology 4 s.h.

Sociology
34-10 Introduction to Sociology: Principles 4 s.h.
34-20 Introduction to Sociology: Problems 4 s.h.
Foreign Language Requirements

The Bachelor of Arts degree requires at least four semesters of college-level study in any of the foreign languages taught in the University. The requirement may also be satisfied by completion in four years of high school study in one language, completion of a combination of high school and college study in one language which would be the equivalent of four semesters of study on the college level, or satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after four semesters of college study in one language.

The Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Science degrees require at least two semesters of college-level study in any one of the foreign languages taught in the University. The requirement may also be satisfied by completion of two years of high school study in one language, completion of a combination of high school and college study in one language which would be the equivalent of two semesters of study on the college level, or satisfactory performance in an achievement examination measuring proficiency equivalent to that usually attained after two semesters of college study in one foreign language.

Students taking I.N.Rich may satisfy the oral language requirement for the B.A. degree by taking a course culminating in 6:12 Intermediate French or 8:28 Second-Year Composition and Conversation, or a combination of 8:27 Second-Year Composition and Conversation and 8:28 French Conversation First Level; 8:28 alone is not sufficient for the fourth-semester requirement. Other combinations are possible. Check with the Department of French.

For elementary Chinese of Japanese courses, 6 semester hours per course, for a total of 12 semester hours, will meet the foreign language requirements for the B.A. degree. One semester (6 semester hours) of these languages will meet the foreign language requirement for the B.F.A., B.M., or B.S. degree.

No foreign language is required for the Bachelor of General Studies or the Bachelor of Liberal Studies degree.

No foreign language courses may be taken pass/fail if they are to be used toward satisfying the foreign language requirement of the college.

Foreign Language Requirement for Foreign Students

Students admitted to The University of Iowa as foreign students may satisfy the foreign language requirement for graduation from the College of Liberal Arts with the B.A., B.S., B.M., and B.F.A. degrees as indicated below.

As a guiding principle, students should be bilingual. If it is clear that the student is proficient in a language (qualifies as a native language) other than English, the student can use English to meet the foreign language requirement. If it is not clear what a student's other language is, the Admissions Office will confer with the Liberal Arts Advisory Office.

At the time of admission of foreign students, the Admissions Office may indicate on the Admission Statement whether the foreign language requirement is satisfied and in which of the following ways:

- By completing advanced courses, or
- By completing a course or courses of special interest in the student's field of study.

If the requirement is still to be satisfied, the Admissions Office will so indicate.

When foreign students who did not meet the foreign language requirement at the time of admission are ready to graduate, the graduation analysis section of the Registrar's Office will accept any of the following as meeting the requirement:

- Successful completion of at least 12 semester hours of appropriate courses in "English as a foreign language" (EFL) taught by The University of Iowa Language Department;
- Successful completion of either the 10:1-12:1 Rhetoric sequence or 10:3 Rhetoric with grades of C or better; and
- Demonstrated proficiency in the use of the English language for the EFL program (or credit) will be awarded on the basis of these evaluations;
- Successful completion of at least 30 semester hours of coursework at the University with a grade-point average of 2.0 or better.

Foreign students usually have their English proficiency evaluated by the EFL program upon first arrival on campus, and must be required to take specific EFL courses before they are eligible to enroll in rhetoric.

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 have satisfied the general education requirements of the college (i.e., skills, cores, and foreign language), except that students held for the rhetoric requirement must enroll for a rhetoric course.

Within the freedom of the B.G.S. degree, students may assemble groups of courses related to a single topic or they may select courses from a number of disciplines. Individuals may put together one or more clusters 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 avoid anything from those requirements only where it seems in their best interests to do so, as working out 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 decides to earn a B.A. or B.S. degree, the student must then meet all of the necessary skills, cores, and foreign language requirements for the B.A. or B.S. degree.

Specific requirements for the B.G.S. degree are as follows:
Teaching Certification with the B.G.S. Degree

A B.G.S. student may earn teaching certification in early childhood, elementary, social, or secondary education in the following manner:
- Meet all B.G.S. upper-division course requirements and course distribution requirements.
- Meet the requirements of the major department (this usually involves meeting major course requirements in a field, such as elementary education, English, social studies education, etc.)
- Meet certification requirements in the selected certification program (this involves methods courses and practice teaching).

A B.G.S. student seeking certification to teach may select the coursework of education and psychology courses to avoid exceeding the B.G.S. maximum allowance of 45 semester hours in one department.

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 the college as full-time, on-campus students. The program has no residence requirement. Work done in community and private colleges in Iowa and in accredited out-of-state colleges may be applied toward the degree, as may applicable courses taken from any of the three Iowa Regents universities. Types of courses available from the Regents universities include correspondence and independent study courses; radio, television, and newspaper courses; Saturday and evening courses; extension courses including those with new distance-learning formats; and regular on-campus courses. Students may also take proficiency examinations.

To be eligible for admission to the program, the student must have earned either an Associate in Arts (A.A.) or Associate in Science (A.S.) degree from an accredited institution, or 60 semester hours of general education credit toward graduation. The student must satisfy the college's basic skills and core course requirements. Holders of the A.A. or A.S. degree will have already met these requirements.

Of the 124 semester hours of credit required for the degree, 45 must be earned in four-year colleges, in 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 36 must be earned after admission to the B.L.S. program in the specific Regents university which 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, and, in addition, must earn at least 12 semester hours (or 18 quarter hours) of credit in each of the three distribution areas:

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

Of these 36 semester hours, 24 must be in upper-level courses, and of these 24, at least 8 must be in each of the three selected distribution areas. Credits applied to the general education requirements may not be used to meet the distribution area requirements.

Graduation requires a minimum grade-point average of 2.00 in all coursework applied toward the degree, in all coursework completed after admission to the program, and in all upper-level coursework.

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

Combined Degree Programs

In combined degree programs with other colleges in The University of Iowa, such as medicine, dentistry, and engineering, the student must fulfill all specific
requisites for the bachelor's degree, including the residence requirements of the College of Liberal Arts. Immediately preceding transfer to the professional college, no more than 30 semester hours earned in the professional college, after the student transfers from College of Liberal Arts, may be counted as electives toward the College of Liberal Arts degree.

Two or More Bachelor's Degrees

Students who have already received a bachelor's degree and wish to qualify for an additional bachelor's degree must meet requirements for the second degree and complete at least 35 additional hours of study in residence in the College of Liberal Arts beyond the first degree.

Double Majors

Students may meet the major requirements of more than one department, and if both departments award the same degree, the student may earn a bachelor's degree with two majors; for example, B.A. in history and English; B.S. in psychology and sociology. No double majors can be earned unless both are departments of the College of Liberal Arts.

Scholarship Requirements for Graduation

The general requirements for graduation include the element of quality as well as the quantity of work completed. A student satisfies the qualifying graduation requirements of the college by earning a minimum grade-point average of 2.0 on (1) all college-level work attempted, or (2) work attempted at The University of Iowa, (3) all work attempted in the major field, and (4) all work attempted in the major field at The University of Iowa.

A student who does not meet requirement (1) but who does have a cumulative grade-point average of at least 1.8 on college work attempted and on all work attempted at The University of Iowa, and has a 2.0 average in the major, both cumulative and at The University of Iowa, may satisfy requirement (1) by earning sufficient grade points to equal or exceed a figure obtained by multiplying by two the number of hours required for graduation at the time of entrance.

Grade-Point Average

The cumulative grade-point average is computed by (1) multiplying the hours of credit in each course by the appropriate grade points; (2) totaling the grade points earned to date; and (3) dividing the sum by the number of hours undertaken, excluding courses in which grades of W or P are given. Grades of F are included if hours attempted and are used in computing the grade-point average.

Collegiate Policies

Deadlines

Adds

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.

Drops

Courses may be dropped during the first ten weeks of the semester or first five weeks of the summer session with the approval of the advisor and instructor.

Special Courses

Courses that meet on a different schedule or start or end at times other than the beginning and end of the semester, and are so listed in the Schedule of Courses, may be added with necessary signatures at any time during the first one-fifth of the duration of the course. Similar proportional withdrawals will operate during the usual eight-week summer session and for other special session courses. The dean's approval will be needed for all adds after the third week and for all drops that occur after the tenth week.

Pass-Fail and Audit

Pass/fail registrations or revokes of pass/fail registration and changes to audit or revoking audit may be made during the first three weeks of the semester (first one and one-half weeks of the summer session) with approval of the advisor and instructor.

Late Registration

With the approval of the advisor and instructor, students may register late during the first three weeks of the semester or first one and one-half weeks of the summer session.

Cancellation

Students may cancel their registration at any time during the session up to 4:30 P.M. of the last day of classes.

Grading System

A: 4 grade points
B: 3 grade points
C: 2 grade points
D: 1 grade point
F: no grade points
P: pass, no grade points
S: satisfactory pass, no grade points
R: registered, no credit
I: incomplete
O: no report
W: withdrawn

Grade of Incomplete

A grade of I may be reported only if the unfinished part of the student's work, in a course other than in research, thesis, or independent study, is small; the work is unfinished for reasons acceptable to the instructor; and the student is 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. The work must be completed and submitted to the course instructor three and one-half weeks prior to the close of final exam week of the next session in which the student registers, except that students with incompletes from the spring semester are exempt from completing the course during the succeeding summer session.
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 satisfactory (S) may be used in courses in which the judgment of the department, the instructional purposes of the course will be best served by granting all students on a satisfactory-fail basis.

Not more than 16 semester hours of S grades from all colleges will be accepted toward the bachelor's degree for any student. Transfer students who bring in less than 50 semester hours may earn a maximum of 10 semester hours of S grades. Those who bring in more than 56 semester hours are limited to 8 semester hours of S grades. (See comment under "Credit Requirements for Graduation." Limiting the total hours of S grades.)

The grade of S under the satisfactory-fail usage will be listed in the compilation of the student's grade-point average.

Auditing Courses

Students in the College of Liberal Arts may register to audit courses by marking their registration form for zero credit (audit) during registration with the special permission signature of the instructor and the advisor. To add a course for audit (zero credit) after the start of the semester, the student must register for zero credit on a change of registration form. Any change from credit to audit or audit to credit basis must be made within the first three weeks of a semester (one and one-half weeks during the summer session), using a change of registration form with the necessary signatures.

The mark of F will be assigned to those registered for the course for zero credit if the student's attendance and performance are satisfactory; if unsatisfactory, the mark of W will be assigned. Courses offered for zero credit only will be graded on the R/W basis. Courses offered for zero credit as well as for credit hours, when taken for zero credit, will use the R/W grade basis. Courses completed with a mark of F will not meet any college requirements, and carry no credit toward graduation.
Advanced Placement

Under the Advanced Placement Program of the College Entrance Examination Board, a high school senior may take comprehensive achievement examinations in various subjects. The College of Liberal Arts grants college credit and, where appropriate, advanced placement or student records. Students who achieve satisfactory scores in these examinations, for information, write to the College Entrance Examination Board, 475 Riverside Drive, New York, N.Y. 10065.

Second-Grade-Only Option

For courses taken at The University of Iowa, a student may repeat that course at the University unless obvious regressive is involved, and have only the grade and credit of the second registration used in calculating the University of Iowa cumulative and total cumulative grade-point average. This provision may be applied to a maximum of 16 semester hours of work. A student who wishes to utilize the provisions of this rule should:

- Register in the usual manner for the course he or she decides to repeat or add it during the regular period for adding courses (the first three weeks of the semester or one and one-half weeks of a summer session).
- Apply to the Liberal Arts Advisor Office to check his or her eligibility and complete the proper form. Current procedures of the Registrar in instances where a student repeats a course will be continued unless the student completes the form.

Under the provisions of this option, the Office of the Registrar will make 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 necessary time period the student has available, the course may no longer be offered, or different actions concerning grades may be involved.

Classification

Freshman: less than 28 semester hours of credit earned
Sophomore: 28 through 55 semester hours earned
Junior: 56 through 89 semester hours earned
Senior: more than 88 semester hours earned

Official Transcripts

Official transcripts of a student's record are available at the Office of the Registrar.

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 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 may file another application for a degree for the next applicable session. Students do not need to be re-registered to apply for a degree.

Graduation Analysis

Students may obtain a written graduation analysis upon application 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.

Class Attendance

The individual faculty member of a course chairman determines the policy regarding class attendance in his or her course except that students are not permitted to "make up" examinations or other required work missed due to illness or participation in University-sponsored activities which necessitates absence from class. Students are required to
observe the regulations as announced for the course. The individual instructor may assign extra work, lower grades, or in frequent cases cancel the student’s registration for the course if absences are excessive.

Students are expected to attend classes regularly. It is suggested that instructors and reasonably adequate attendance records, especially in courses in which attendance was specified. When an instructor considers that a student has been excessively absent, that is, when such absence endangers satisfactory academic progress, the instructor may call or send a written request to the Liberal Arts Advisory Office for investigation and action.

Excused Absences

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 for medical or health reasons are expected to present evidence that they have been ill. Regular excuses for this purpose are available in each departmental office and the Liberal Arts Advisory Office. Students should not be asked to obtain excuses from the Student Health Service.

Mid-Semester Reports

Faculty members are expected to report mid-semesters grades for classes whose work is below C. Mid-semester reports should be sent to the Office of the Registrar on forms provided for that purpose. The Liberal Arts Advisory Office distributes the reports to advisers and to individual students or the housing units in which they reside.

Probation and Dismissal

Students who fail to attain the following minimum cumulative grade point averages (UI and overall) for their class are placed (or continued) on scholastic probation:
Freshmen (less than 20 semester hours): 1.60
Sophomores (20 to 65 semester hours): 1.70
Juniors (65 to 80 semester hour): 1.75
Seniors (90 or more semester hours): 1.80

Students on probation whose cumulative (UI and overall) grade point averages fall below or exceed the grade point averages listed in the paragraph above for the first three years will be restored to good standing. Students will be removed from probation only at the end of a semester or session.

Students who fail to make the grade point averages as listed in the paragraph above will be dropped from the college for poor scholarship. As follows: those who are admitted on probation, at the close of one semester or session; those who are admitted in good standing and are placed on probation at the close of the first semester of their enrollment, after one semester on probation; all others after two semesters on probation. However, very poor work in any semester may result in dismissal at the close of that semester or session.

Under special and unusual conditions, students may be granted an additional semester on probation. Petitions should be addressed to the director of the Liberal Arts Advisory Office. Students who are dropped for poor scholarship at the close of the spring semester will, at their request, have their cases reviewed if they enroll in the summer session at The University of Iowa and achieve good standing at the close of the session.

A student dropped from the college for poor scholarship may petition the Liberal Arts Advisory Office for permission to reenter after an interval of one year. The petition must present evidence that changes have occurred in the status of the student which indicate improved chances of success in college work. A student granted permission to reenter under the provisions of this paragraph will be registered on “strict probation” and dropped for the second time for poor scholarship, may not register for at least five years. After five years, the student may petition the Liberal Arts Advisory Office for permission to reenter.

A record of each student’s scholastic performance is kept in the Office of the Registrar and in the Liberal Arts Advisory Office. Students placed on probation, continued on probation, or dismissed from the college are notified in writing by the Liberal Arts Advisory Office.

Recognition for Academic Achievement

The college awards degrees “with highest distinction” to students in the highest 2 percent of the graduating class, “with high distinction” to students in the next highest 3 percent, and “with distinction” to students in the next highest 6 percent. Ranking is based on students’ grade-point averages for all college-level study undertaken prior to their final registration.

The college also awards degrees “with honors” to students who have satisfied the requirements for an honors major, receive departmental recommendation, and are approved by the college’s Honors Council and dean.

To be eligible for either 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 45 semester hours of study in the college before his or her final registration.

Dean’s List

Liberal arts students achieving grade-point averages of 3.0 or above during a given semester on 12 or more semester hours of graded work, with no “E” or “F” and all standing on the current or past semester’s record, are recognized by inclusion on the Dean’s List for that semester.
Aerospace Military Studies

Department head: Col. John Falta
Head professor: Col. John Falta
Assistant professor: Capt. James P. Olson, Capt. Roger A. Kelly

The Air Force Reserve Officers Training Corps (AFROTC) at Iowa is designated as the Department of Aerospace Military Studies in the College of Liberal Arts. Credits earned in the department may count toward any degree the University offers. A student may enroll in any academic course the department offers, whether the student is a cadet or not.

To meet the challenges of complex, high-technology developments, the U.S. Air Force must have a professional officer corps with a wide range of technical abilities. Sophisticated aircraft manned by skilled pilots and navigators still comprise the most flexible weapons system in the air force. The air force also needs young officers to work with research and development, complex communications-electronics systems, high-speed computers, in specialized fields like law and medicine and in management areas. The AFROTC program is designed to educate students in these capabilities and to prepare them for active military duty.

Participation in the first two years of the program, and in summer field training, allows a non-obligation look at the air force into the last two years of the program is competitive, and entails a commitment to serve a minimum of four years as an air force officer.

The U.S. Air Force must be an imaginative leader and a resourceful manager. To develop these traits in future officers, the AFROTC curriculum stresses student responsibility and involvement. Cadets are required to have satisfactorily completed a minimum of one course in rhetoric and one course in mathematical logic by the end of their third year in the AFROTC program. The College of Liberal Arts core requirements minimally satisfy this requirement. Cadets expand upon these skills in small seminars, where they engage in group discussions, debates, problem solving, and simulation activities requiring maximum individual participation and group cooperation.

Students are expected to evaluate critically what they read and what they say. This student-oriented approach encourages inquiry, logical thinking, effective communication, imagination, and sound judgment.

The program is open to graduates as well as undergraduate students. To be designated as a cadet, the student must register for the AFROTC course sequence.

A student in the AFROTC program takes the 22A1:11-12 sequence the first year, 22A1:11-12 The Development of Air Power the second year, 22A1:11-12 Management and Leadership the third year, 22A1:11-12 National Security Forces in Contemporary American Society the fourth year, and 22A1:11-12 Leadership Laboratory all four years. Throughout each year, three-and four-day orientations visits to air force bases supplement classroom instruction.

Two- and Three-Year Programs

Although the AFROTC curriculum normally spans four years, it can be completed in three years by squeezing the first two years' courses into one year. The program also can be completed in two years if the student attends six weeks of summer field training at an air force base before beginning the last two years of the regular curriculum. Students interested in the two-year program should contact the Department of Aerospace Military Studies early in the spring semester prior to attending air field training.

Field Training

Prior to commissioning, all cadets that attend a field training session offered at air force bases across the country.

Generally, this training takes place in the third year of the program.

Field training for four-year cadets is four weeks in length and includes courses in cadet orientation, survival training, aircraft orientation, physical training, air force organization and function, career orientation, small arms familiarization, and human relations. The six-week field training for students selecting the two-year AFROTC program includes sixty hours of classroom academics.

Two-week periods on active duty working in the student's future career area in attendance at the Airborne "jump" school are voluntary options also available to selected students.

Advanced Placement

Service veterans can get full credit toward commissioning (not graduation) for the first two years of AFROTC and are not required to attend field training prior to attending the program. They must, however, complete the training prior to commissioning.

Flight Instruction Program

During the year prior to commissioning, students selected for pilot training will receive 26 hours of flying training from the Iowa City Flying Service.

Financial Assistance

Scholarships which provide tuition, books, laboratory fees, and a $100 per month, tax-free subsistence allowance are available to cadets. Applications for four-year scholarships are submitted directly to National Air Force Headquarters. Applications for 3 1/2-, 3, 2 1/2-, and 2-year scholarships are submitted through the Department of Aerospace Military Studies at the University.

All cadets in the last two years of AFROTC receive $100 monthly as a tax-free subsistence allowance. Benefits, attending field training are paid while there and receive travel expenses. Uniforms and books for class use taught by military faculty are furnished, and a $300 uniform allowance is provided for every student.

Educational Delay

Cadets may request an educational delay to postpone entry to active duty.
Special Activities

The Department of Aerospace Military Studies sponsors several activities which contribute to cadet and University life.

The Arnold Air Society is a national professional honor society which engages in University and community service activities.

The Cadel Corps sponsors social activities throughout the year, including informal parties, a formal dinner, a military ball, and an awards ceremony which honors outstanding cadets for their accomplishments.

Courses

23A:11 The Air Force Today 1 Cr.
Introduction to all facets of the Air Force. Includes organization, mission, and growth of the Air Force, modern use of conventional and defensive forces, improvement of special purpose forces.

23A:12 The Air Force Today 1 Cr.
Continuation of 23A:11.

23A:51 The Development of Air Power 2 Cr.
Studies development of air power from the Civil War to Vietnam. Includes development of air power presence, advances in technology, role of air power in military and humanitarian operations.

23A:62 The Development of Air Power
Continuation of 23A:51.

23A:60 Aerospace Military Studies Flight Instruction 2 Cr.
Presumes students to possess FAA private pilot's and either instrument rating, light-twin pilot, or commercial/flight instructor rating. Credit does not include actual flying time.

23A:69 Leadership Laboratory 2 Cr.
Opportunity for cadets in experiment with and develop skills, techniques, and attitudes in planning, command, and control, under cadets' meaningful experiences with increasing authority and responsibility, may be repeated for credit.

23A:90 Leadership Seminar 2 Cr.
Continuation of 23A:69. May be repeated for credit.

Examines the role of the armed forces as an integral component of contemporary American society, including military actions, U.S. defense policy, international environment, and military justice.

23A:113 National Security Force in Contemporary America 2 Cr.
Continuation of 23A:110.

23A:114 Management and Leadership Theory and application of basic management concepts, with emphasis on air force management. Includes communication, human behavior, management processes. Also includes management strategy and tactics, value conflicts, managing forces in change.


Afro-American Studies

Program chair: D. T. Turner
Professor: John R. Turner (English/Afro-American Studies)
Associate Professor: Peter Hasebrock
(English/International Studies/Afro-American Studies)
Professor: T. W. Johnson (English/Afro-American Studies)
Assistant professor: Naomi Watts (History/Afro-American Studies)

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 Africans in other lands. 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 of present emphasizes history and literature, the Afro-American studies steering committee engages in a continuous effort to expand program perspectives through 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 of the 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. It is also possible for students seeking Ph.D. degrees in English or history to organize a course in Afro-American Literature or Afro-American History into a special field or cognate area. Although most of the students in the Ph.D. programs 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/her advisor, the student selects 16 semester hours in 100-level, designated Afro-American Studies courses. Lists of such courses are available in the office of Afro-American Studies and in 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 45.60 of Afro-American Literature of the African Diaspora, 45.61 Introduction to Afro-American Culture, and five elective from the following: 45.10 through 45.19. Also recommended as background for more advanced courses in Afro-American studies in American and European history are 45.11 through 45.17. Afro-American Literature 1-3 and two of the following: 45.165 Afro-American History in 1-3, 45.166 Afro-American History 1830-1914, and
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 quantification 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. Requirements include 45:211 Introduction to Research in Afro-American Culture, 45:312 Advanced Research in Afro-American Culture, and 12 semester-hours of elective courses in Afro-American studies.

Most students will be required to earn 8 semester hours in literature/history by taking 45:116-117: Afro-American Literature I-II, or two of the following: 45:135 Afro-American History 1800-1820, 45:136 Afro-American History 1820-1865, and/or 45:137 Afro-American History 1865-1914. Students who have earned undergraduate or graduate credit for a year-long survey of either Afro-American literature or Afro-American history will satisfy the literature/history requirement by studying the area in which they have no credit. Students who have earned neither undergraduate nor graduate credit in Afro-American literature or Afro-American history may be required to complete both 45:116-117 Afro-American Literature I-II and two of the following: 45:135 Afro-American History 1800-1820, 45:136 Afro-American History 1820-1865, or 45:137 Afro-American History 1865-1914. Present, with only 6 hours of credit allowed toward the M.A. degree. A student who has completed one of the following, undergraduate or graduate surveys in both Afro-American literature and Afro-American history will be permitted to satisfy the literature/history requirement by selecting 8 semester hours of Afro-American studies electives approved by the student's advisor.

Because the doctorate is not offered in Afro-American studies and the Afro-American studies steering committee wishes to encourage doctoral study for those who have the ability, interest, and resources, it recommends that the other 8 semester hours required in the Master of Arts program 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 one of the courses in their curricula from those numbered above 200.

Language/Tool Requirements

No foreign language or tool is required for the Master of Arts program in Afro-American studies, but individuals electing the possibility of doctoral study in another field will be 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 Master of Arts degree in Afro-American studies. If a student elects to write a thesis, the thesis must explore a topic of Afro-American culture and/or experience and must utilize research from more than one discipline. The maximum credit for such a thesis is 4 semester hours, and the election of a thesis eliminates the requirement of 45:312 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 admission into the Afro-American Studies Program requires that a student have an appropriate educational background in literature and the social sciences, at least 6 semester hours of college credits in Afro-American literature and/or history courses, and a minimum grade-point average of 2.7 in previous college courses in Afro-American studies. A student may be asked to take, without credit toward the master's degree, courses needed to remedy any deficiencies in undergraduate preparation.

An applicant for admittance will be expected to provide three letters of recommendation from former professors, and a sample of his or her scholarly written work. Recommendations for admission will be made by the Afro-American studies steering committee.

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

Generally a student seeking a concentration in Afro-American studies within a Master of Arts program in American studies is preparing for a career as a research scholar or a college/university teacher, and proposes to undertake doctoral work in American studies. Of the 36 post-baccalaureate semester hours required for the degree, 12 to 24 normally are taken in Afro-American studies. Since the Afro-American Studies Program is
interdisciplinary, students taking 24
hours are required to complete 45:211
introduction to Research in Afro-
American Culture, 45:118-117 Afro-
American Literature I-IV, and two of
the following: 45:165 Afro-American
History 1860-1890, 45:165 Afro-American
History 1920-1914, and 45:165 Afro-
American History 1914-Present, except
when they have taken equivalent
courses at the undergraduate level.
For other requirements, see the program
for a Major in American studies, described
in the following departmental sections of the Catalog.

Afro-American Studies Concentration within a Ph.D. Program in American Studies

Generally, a student seeking a Ph.D. in American studies with a concentration in Afro-American studies is preparing to be a teacher or research scholar at the college or university level. Of the minimum 72 post-baccalaureate semester hours required for the degree, at least 30 semester hours (not including the thesis) must be in courses in Afro-American studies, including 45:211 Introduction to Research in Afro-American Culture; 45:118-117 Afro-American Literature I-II and two of the following: 45:165 Afro-American History 1860-1890, 45:165 Afro-American History 1920-1914, and 45:165 Afro-American History 1914-Present, except when the student has completed equivalent year-long surveys in Afro-American literature and history before enrolling in the graduate program at The University of Iowa.

The interdisciplinary concentration in Afro-American humanities and social sciences requires students to explore both areas. The thesis may draw upon research from more than one field, while focusing on an aspect of Afro-American culture or experience. For additional requirements, please see the description of the requirements for the doctoral program in American studies in the following departmental section of the Catalog.

Cognate Areas or 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, English, and other disciplines. For further details, consult with an adviser in Afro-American studies.

Cocurricular Activities Related to Afro-
American Studies

Black Kaleidoscope

Each year the Afro-American Studies Program attempts to promote knowledge and consciousness 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

Since 1989, The University of Iowa each summer has served as host for an Institute in Afro-American Studies for college and university teachers. The institutes, which bring renowned artists and lecturers to the campus, have focused on such topics as the Harlem Renaissance, Richard Wright, W.E.B. DuBois, Black Americans in theater, and slave narratifs. Although students in residence at the University are not eligible to be official members of the Institute, they are permitted to enroll in a three-semester-hour course which is offered at the same time as the Institute and on the current year's topic.

Block Action Theater

Academically sponsored through the Afro-American Studies Program, Block Action Theater affords participants instruction and experience in theatrical 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 Iowa City community and a cultural meeting place for Black students. It also attempts to promote a knowledge of Black culture which will improve interpersonal understanding among 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 arts in representations of Black culture and history.

Significant Courses Related to Afro-
American Studies

Although they are not included in the basic list of courses in the Afro-American Studies Program, the following are recommended for people interested in this area. For course descriptions, see appropriate sections of the Catalog.

Business Administration

E 625 Employment Relations and Public Policy 3 s.h.

Economics

E 617 Problems in Urban Economics 3 s.h.

Education

E 104 Education in the Developing Countries 2-3 s.h.

E 130 Educational Sociology 2-3 s.h.

E 300 Seminar: Value Problems in the Administration of American Education 3 s.h.

E 133 Socialization of School-Age Child 2-3 s.h.

E 133 The Culturally Different in Educational Settings 3 s.h.
American Studies Program

Program Chair: Albert K. Stone

Faculty: Professors: Barbara A. McDonald (Women's Studies/Humanities), Albert S. Stone (American Studies/History), David L. Turner (American Studies/English)

Assistant professors: John Fadiman (American Studies/English), Frederick Wooten (American Studies/English)

Assistant professors: Richard P. Horvitz (American Studies), Michael W. Seton (American Studies/History), Jane A. Welna (American Studies/Archaeology)

Instructor: Abigail S. Vens (American Studies)


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

In its coursework and for its majors, the American Studies Program provides an interdisciplinary introduction to American culture, past and present. The aim of the program is to train students and critics of culture who are broadly familiar with the dynamics of cultural experience. Students may combine cognate departments' courses in American experience with the interdisciplinary courses and seminars of the American Studies Program to explore such aspects of life in the United States as political and cultural history, institutions, values, social processes, artifacts, and the contributions of subcultures.

Bachelor of Arts

While the B.A. degree in American studies stresses broad training in cultural analysis and communication, rather than specific professional or vocational training, it provides preparation for a career in business, education, government, journalism, or social service; for advanced studies in the humanities, the social sciences, theology, or business; or for professional studies in law or medicine. With his or her advisor's assistance and approval, the student planning to major in American studies develops an individual plan of study combining courses from cognate departments and programs with comprehensive American Studies Program courses which relate a common period, topic, theme, or problem in American cultural experience. The major normally consists of 12 courses totaling 36 semester hours and including four courses (12 semester hours) in American and/or Afro-American studies, two courses (6 semester hours) in American history; and six (18 semester hours) in cognate departments and/or American studies.

The courses in American and/or Afro-American studies usually include:

4.5:1 American Values

4.5:90 Turning Points in American Culture

Any two of the following:

4.5:2 American Issues

4.5:2 Women in American Culture

4.5:4 Family and Sex Roles in American Life

4.5:5 Media Studies

4.5:8 Regional Studies

4.5:7 Sex, Race, and Ethnicity

4.5:9 American Music

4.5:90 Introduction to Afro-American Society

4.5:81 Introduction to Afro-American Culture

4.5:102 Readings in American Studies

4.5:102 Childhood and Youth in America

4.5:108 Visual Arts and American Culture

4.5:108 American Institutions: The Corporation

4.5:185 American Communities: the Cowville Strip

4.5:185 Autobiography and American Culture

4.5:185 Popular Culture

The major usually includes two of the following American history courses:

16:81 Colophon for History Majors

16:81 American History

16:82 American History

Many historical-cultural, literature, and social science core courses provide relevant preparation for the American Studies major: 11.9 American Lives is especially recommended.
Honors

Honors candidates in American studies must take 45-930 Turning Points in American Culture and 45-936 Honors Project. With his or her advisor’s help, the student in 45-936 defines a research project on an American studies topic, does the research, and presents the results of the research in a senior essay.

Minor in American Studies

Students interested in a minor in American Studies are invited to consult members of the staff.

Master of Arts

The M.A. degree in American studies may be a terminal degree or a degree preliminary to the Ph.D. in American studies of a traditional discipline.

The M.A. program in American studies normally includes 12 courses totaling 38 semester hours. These are the requirements:

45-200 Theory and Practice in American Studies 4 s.h.
45-201 History, Literature, and American Popular Culture 3 s.h.
Two other courses or seminars in American studies

Four courses in each of two fields or aspects of American studies, either in a traditional discipline or on a topic, period, or problem approached from several different disciplines or methodological perspectives

Satisfactory performance on a comprehensive examination on coursework and basic concepts

The M.A. may also be taken with thesis, in which case 30 semester hours of coursework is the required minimum. Consult department chair for details.

A joint program leading to the M.A. degree in American studies and the J.D. degree from the College of Law provides a broad cultural context for the study and practice of law. Similar joint programs may be arranged in other professional fields, including social work and journalism.

Doctor of Philosophy

The Ph.D. program in American studies requires a minimum of 71 semester hours of coursework, preparing the candidate in five areas: American studies seminars in interdisciplinary approaches and substantial coursework in a major field or fields; equivalent work in a second minor field or topic; courses in a minor field or topic; and tools, skills, or comparative culture study.

Although permitted considerable flexibility in planning a program, the American studies candidate must meet certain basic requirements. One is that all students directly engage in coursework and reading, the cultural diversity of American life and experience. Some coursework is expected in such areas as Afro-American studies, women’s studies, native American culture, or Chicago culture; this will be specifically explained 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.

The candidate normally takes 45-200 Theory and Practice in American Studies and 45-201 History, Literature, and American Popular Culture during the first year of graduate study, and should include 45-620 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 the 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 one basis for the candidate’s oral final examination.

The student also takes three or four minor-area courses, organized around a specific topic or subdiscipline. A student who wishes to explore a larger topic as a minor may do so if one of his or her major areas has a thematic or specific focus.

Instead of a written final examination, the candidate prepares an annotated bibliography on the minor field, for evaluation by a member of his or her comprehensive examination committee. A candidate who has already submitted an annotated bibliography for a course has the option of taking a two-hour written examination based on an abbreviated reading list.

The tools and skills area may comprise up to 12 semester hours of coursework, in which the candidate may include up to 8 semester hours of graduate-level coursework in foreign language, filmmaking, linguistics, computer science, statistics, etc.; up to 6 semester hours in thesis research and writing; up to 6 semester hours of coursework on other cultures; up to 3 semester hours of coursework on teaching methods; and/or up to 6 semester hours of coursework on American studies topics outside the major and minor areas.

The candidate must demonstrate mastery of two tools or skills useful for culture studies. The candidate may satisfy this requirement with a combination of coursework, prior experience, summer internships, and/or independent study.

The final requirement for the Ph.D. in American studies is presentation of an acceptable thesis on a topic whose investigation involves more than one field or discipline. The candidate may present a creative thesis—such as fiction, autobiography, film—if he or she combines it with a critical analysis of the cultural experiences the thesis reflects.

Internships

Qualified graduate students in American studies can arrange internships with the Division of Historical Preservation, the University of Iowa Museum of Art, Living History Farms, the Herbert Hoover National Historic Site, and the Putnam Museum, Davenport. A candidate conducting research during such on-the- job training may receive academic credit.
Courses

Primarily for Undergraduates

451 American Popular Culture
3 cr.
Introduction to American studies via representative texts, artifacts, and cultural values in national and transnational perspectives.

452 American Indian
3 cr.
Topics and problems in American studies and women's studies.

453 Women in American Culture
3 cr.
Topics include popular women's; women and work, the writings of American women; American women artists.

454 Family and the Role in American Life
3 cr.
Women and the family, family sexuality in American and Native culture.

455 Media Studies
3 cr.
Studies in film, television, cartoons, the new journalism.

456 Regional Studies
3 cr.
The American West.

457 American Music
3 cr.
Jazz, blues, or rock 'n' roll.

458 Theories and the Future of War
3 cr.

459 Turner Politics in American Culture
3 cr.
Inductive study of a single theme or period in American culture, employing a variety of materials and an interdisciplinary perspective: theme may include the 1960s, the 1970s, or the 1980s, the 1990s; the theme is that of the memory, the rhetoric, and the people.

458 News Project
3 cr.
Independent research and writing on an interdisciplinary topic.

For Undergraduates and Graduates

4510 Readings in American Studies
3 cr.

4531 Literature and Culture of America Before 1865
4 cr.
The immersed period in American culture, studied through texts, films, artifacts, and the arts - American and non-American - and relevant to the psychology of comprehension. Same as 4531.

4515 Childhood and Youth in America
3 cr.

4520 Applied Aesthetics
3 cr.
Aesthetics, critical, interpretative, and aesthetic perspectives in the older American.

4525 American Art and Architecture
3 cr.

4530 Women in American Culture
3 cr.

4535 Social History: The American Story
3 cr.

4536 American Humanities: The Humanities in America
3 cr.

4540 American Society
3 cr.

4550 American Institutions: The Business Corporation
3 cr.

4555 American Comedy by Carlotta Sibley
3 cr.
Undergraduate study of American comic culture.

450-101 Anthropology and American Culture
3 cr.
Topics in American culture, life and the world, the historical and cultural experiences of the native American peoples and the visual arts.

450-102 Popular Culture
3 cr.
Emphasis on social categories, American television, radio, and the music industry.

450-201 History, Literature, and American Popular Culture
3 cr.
Approaches to literary and historical dimensions in American culture.

4551 Theories and the Future of War
3 cr.

458 News Project
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Field Research

Opportunities are available for students to participate in archaeological field research in Central Mexico or at various sites in Iowa. Under the direction of University archaeologists, participating students 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 precedes 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 30-hour M.A. degree without thesis is available in conjunction with a minor concentration in museology. The following are the distribution requirements at the M.A. level:

Either:
113:140 Social Anthropology
113:240 Seminar: Social Anthropology
113:201 Seminar: Anthropological Theory

Or:
113:171 Anthropological Linguistics
113:266 Seminar: Archaeological Theory and Method
113:265 Seminar: Biological Anthropology

In addition to the above:
One course in social institutions;
One course in linguistics (including courses in the Department of Linguistics); and
One course in archaeology.

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

Students with previous training in anthropology, whatever their undergraduate major, may petition for permission to waive any part of 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 museology. Details of exhibit preparation and the general operational procedures of small science museums form part of the student's training. Further information on this option may be obtained from the Department of Anthropology or the Museum of Natural History.

Doctor of Philosophy

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

Training in a specialization will be guided by a Ph.D. committee composed of members of the faculty competent in the particular areas and topics chosen by the student. The only limitations in program 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 semester hours of graduate coursework;
Demonstration of a reading knowledge of one foreign language;
Mastery of a relevant research skill (for example, fluency in a foreign language or proficiency in a branch of mathematics, logh, computer programming, geology, or paleontology);
Ethnographic or archaeological specialization in a major geographic area (for example, North America, Mesoamerica, Oceania, Southeast Asia), 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; and
Preparation and oral defense of a dissertation.

The major topical area is the area of theoretical concentration and orientation for the dissertation. Kinds of topics that may serve either as major or minor areas in socio-cultural or linguistic anthropology include: kinship or social organization, ethnography, language and culture, religion, cultural ecology, and urban anthropology. Examples of possible major topical areas for students in archaeology include settlement pattern archaeology, environmental archaeology, geochronology, paleontology, and radiocarbon dating.

The comprehensive examination ordinarily will be taken when the student's coursework is completed or nearly completed, after the research skills requirements have been satisfied, and before he or she begins fieldwork.

All doctoral candidates are required to carry out original anthropological research. Ordinarily, students conduct fieldwork as the basis for their dissertations; occasionally, however, a research proposal may be carried out using only documents, collections, or other source materials.

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

A limited number of teaching and research assistantships are available. Application for an award should be made directly to the chair, Department of Anthropology.

Facilities

The Department of Anthropology has access to the Iowa Archaeological Collections through the Office of the State Archaeologist. Prof. Thomas H. A. Graf maintains a field laboratory in Mexico. The University is a charter member of the Human Area Relations Project, an extensively annotated set of source materials on the peoples of the world—airplane, behavior, patterns, social lives, and cultures. The HARP and other library resources give anthropology students access to diverse materials on more than 400 different cultures.

Faculty

Members of the anthropology faculty have studied and lived in the Pacific islands, the Orient, the Caribbean, Mexico, Central and South America, and the Sub-Saharan. Department faculty have recently conducted field research in Mexico, Belize, Guatemala, Micronesia, Thailand, the Canadian Subarctic, Peru, St. Lucia, and Israel. 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, patterns of political and economic development of emerging nations, comparative ethnographic studies of hunting and gathering groups, archaeological investigations of Indian and historical sites in Iowa, alcohol use and abuse in Oceania, agricultural and economic decision making among rural peoples in northern Thailand, and Mayan linguistics in Guatemala.

Courses

For Undergraduates Only

123 Introduction to the Study of Culture and Society 4 sh.
124 Anthropology and Contemporary World Problems 3 sh.
131 Introduction to Anthropological Research Methodology 3 sh.
132 Cultural Behavior and Cultural Change 3 sh.
215 Social Structure and Social Organization 3 sh.
216 Language and Human Behavior 3 sh.
217 Language and Communication in Culture 3 sh.
223 Human Heredity and Evolution 3 sh.
224 Methods in the Study of Language 3 sh.
225 Human Behavior in Cross-Cultural Perspective 3 sh.
311 Prehistory of the New World 3 sh.
312 History of Archaeology in North America 3 sh.
313 History of Anthropology 3 sh.
314 African Prehistory 3 sh.
315 American Indian Archaeology 3 sh.
316 American Indian Anthropology 3 sh.
317 American Indian Relations 3 sh.
321 Social Anthropology 3 sh.
322 Cultural Anthropology 3 sh.
323 Field Methods in Anthropology 3 sh.
324 Medical Anthropology 3 sh.
325 Anthropology of Subsistence 3 sh.
326 Anthropological Research Design 3 sh.
327 Anthropology of Social Institutions 3 sh.
328 Anthropology of Language 3 sh.
329 Anthropology of Race and Ethnicity 3 sh.
331 Ethnohistory 3 sh.
332 Ecological Anthropology 3 sh.
333 Human Relations Area Files 3 sh.
334 Seminar in Anthropology 3 sh.
335 Seminar in Archaeology 3 sh.
336 Seminar in Cultural Anthropology 3 sh.
337 Seminar in Social Anthropology 3 sh.
338 Seminar in Medical Anthropology 3 sh.
339 Seminar in Biological Anthropology 3 sh.
341 Seminar in Anthropological Research 3 sh.
342 Seminar in Cultural Anthropological 3 sh.
343 Seminar in Social Anthropological 3 sh.
344 Seminar in Medical Anthropological 3 sh.
345 Seminar in Biological Anthropological 3 sh.
346 Seminar in Anthropological Methods 3 sh.
347 Seminar in Cultural Anthropological Methods 3 sh.
348 Seminar in Social Anthropological Methods 3 sh.
349 Seminar in Medical Anthropological Methods 3 sh.
350 Seminar in Biological Anthropological Methods 3 sh.
351 Seminar in Anthropological Theory 3 sh.
352 Seminar in Cultural Anthropological Theory 3 sh.
353 Seminar in Social Anthropological Theory 3 sh.
354 Seminar in Medical Anthropological Theory 3 sh.
355 Seminar in Biological Anthropological Theory 3 sh.
356 Seminar in Anthropological Practice 3 sh.
357 Seminar in Cultural Anthropological Practice 3 sh.
358 Seminar in Social Anthropological Practice 3 sh.
359 Seminar in Medical Anthropological Practice 3 sh.
360 Seminar in Biological Anthropological Practice 3 sh.
361 Seminar in Anthropological Policy 3 sh.
362 Seminar in Cultural Anthropological Policy 3 sh.
363 Seminar in Social Anthropological Policy 3 sh.
364 Seminar in Medical Anthropological Policy 3 sh.
365 Seminar in Biological Anthropological Policy 3 sh.
366 Seminar in Anthropological Education 3 sh.
367 Seminar in Cultural Anthropological Education 3 sh.
368 Seminar in Social Anthropological Education 3 sh.
369 Seminar in Medical Anthropological Education 3 sh.
370 Seminar in Biological Anthropological Education 3 sh.
371 Seminar in Anthropological Research Capstone 3 sh.
372 Seminar in Cultural Anthropological Research Capstone 3 sh.
373 Seminar in Social Anthropological Research Capstone 3 sh.
374 Seminar in Medical Anthropological Research Capstone 3 sh.
375 Seminar in Biological Anthropological Research Capstone 3 sh.
376 Seminar in Anthropological Practice Capstone 3 sh.
377 Seminar in Cultural Anthropological Practice Capstone 3 sh.
378 Seminar in Social Anthropological Practice Capstone 3 sh.
379 Seminar in Medical Anthropological Practice Capstone 3 sh.
380 Seminar in Biological Anthropological Practice Capstone 3 sh.
381 Seminar in Anthropological Policy Capstone 3 sh.
382 Seminar in Cultural Anthropological Policy Capstone 3 sh.
383 Seminar in Social Anthropological Policy Capstone 3 sh.
384 Seminar in Medical Anthropological Policy Capstone 3 sh.
385 Seminar in Biological Anthropological Policy Capstone 3 sh.
386 Seminar in Anthropological Education Capstone 3 sh.
387 Seminar in Cultural Anthropological Education Capstone 3 sh.
388 Seminar in Social Anthropological Education Capstone 3 sh.
389 Seminar in Medical Anthropological Education Capstone 3 sh.
390 Seminar in Biological Anthropological Education Capstone 3 sh.
391 Seminar in Anthropological Theory Capstone 3 sh.
392 Seminar in Cultural Anthropological Theory Capstone 3 sh.
393 Seminar in Social Anthropological Theory Capstone 3 sh.
394 Seminar in Medical Anthropological Theory Capstone 3 sh.
395 Seminar in Biological Anthropological Theory Capstone 3 sh.
396 Seminar in Anthropological Practice Capstone 3 sh.
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398 Seminar in Social Anthropological Practice Capstone 3 sh.
399 Seminar in Medical Anthropological Practice Capstone 3 sh.
400 Seminar in Biological Anthropological Practice Capstone 3 sh.
401 Seminar in Anthropological Policy Capstone 3 sh.
402 Seminar in Cultural Anthropological Policy Capstone 3 sh.
403 Seminar in Social Anthropological Policy Capstone 3 sh.
404 Seminar in Medical Anthropological Policy Capstone 3 sh.
405 Seminar in Biological Anthropological Policy Capstone 3 sh.
406 Seminar in Anthropological Education Capstone 3 sh.
407 Seminar in Cultural Anthropological Education Capstone 3 sh.
408 Seminar in Social Anthropological Education Capstone 3 sh.
409 Seminar in Medical Anthropological Education Capstone 3 sh.
410 Seminar in Biological Anthropological Education Capstone 3 sh.
411 Seminar in Anthropological Research Project 3 sh.
412 Seminar in Cultural Anthropological Research Project 3 sh.
413 Seminar in Social Anthropological Research Project 3 sh.
414 Seminar in Medical Anthropological Research Project 3 sh.
415 Seminar in Biological Anthropological Research Project 3 sh.
416 Seminar in Anthropological Practice Project 3 sh.
417 Seminar in Cultural Anthropological Practice Project 3 sh.
418 Seminar in Social Anthropological Practice Project 3 sh.
419 Seminar in Medical Anthropological Practice Project 3 sh.
420 Seminar in Biological Anthropological Practice Project 3 sh.
421 Seminar in Anthropological Policy Project 3 sh.
422 Seminar in Cultural Anthropological Policy Project 3 sh.
423 Seminar in Social Anthropological Policy Project 3 sh.
424 Seminar in Medical Anthropological Policy Project 3 sh.
425 Seminar in Biological Anthropological Policy Project 3 sh.
426 Seminar in Anthropological Education Project 3 sh.
427 Seminar in Cultural Anthropological Education Project 3 sh.
428 Seminar in Social Anthropological Education Project 3 sh.
429 Seminar in Medical Anthropological Education Project 3 sh.
430 Seminar in Biological Anthropological Education Project 3 sh.
431 Seminar in Anthropological Research Capstone Project 3 sh.
432 Seminar in Cultural Anthropological Research Capstone Project 3 sh.
433 Seminar in Social Anthropological Research Capstone Project 3 sh.
434 Seminar in Medical Anthropological Research Capstone Project 3 sh.
435 Seminar in Biological Anthropological Research Capstone Project 3 sh.
436 Seminar in Anthropological Practice Capstone Project 3 sh.
437 Seminar in Cultural Anthropological Practice Capstone Project 3 sh.
438 Seminar in Social Anthropological Practice Capstone Project 3 sh.
439 Seminar in Medical Anthropological Practice Capstone Project 3 sh.
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464 Seminar in Medical Anthropological Policy Project Capstone 3 sh.
465 Seminar in Biological Anthropological Policy Project Capstone 3 sh.
466 Seminar in Anthropological Education Project Capstone 3 sh.
467 Seminar in Cultural Anthropological Education Project Capstone 3 sh.
468 Seminar in Social Anthropological Education Project Capstone 3 sh.
469 Seminar in Medical Anthropological Education Project Capstone 3 sh.
470 Seminar in Biological Anthropological Education Project Capstone 3 sh.
As far as possible, the design of academic programs is arranged to meet the individual student's needs. It permits the development of specific as well as general programs in studio arts and history. The major requirements of the undergraduate program are broad and flexible; specialization is discouraged. The art history major requires at least an introduction to studio work. The studio major requires development of a foundation in art history and in at least two 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.

Bachelor of Arts

The B.A. candidate in art or art history must earn at least 74 semester hours of credit in non-art courses, but may apply no more than 60 non-art hours of credit toward the total of 124 hours of credit required for the degree. The candidate must meet the College of Liberal Arts' historical-cultural core requirement with 11:37 Form and Theory in the Visual Arts, and either 11:38 Art in the Western World or 11:42 Art in East and West. Cross-listed courses originating in the School of Art and Art History may not be counted toward fulfilling the general liberal arts core and hour requirements.

Studio Emphasis

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

**Intermediate art history**

12 s.h.

1A:-1 Colloquium

2 s.h.

1A:0 Basic Drawing

2 s.h.

1A:8 Basic Design

2 s.h.

Any two of the following courses:

10:90 Ceramics I

2 s.h.

10:94 Introduction to Metalworking and Jewelry

2 s.h.

1J30 Multimedia I

2 s.h.

1N:15 Undergraduate Sculpture I

2 s.h.

Any two additional studio courses from:

Daweft

Drawing

Painting

Photography

Printmaking

Textiles (if cross-listed with an art number)

Electives to bring the total number of credits in art to a minimum of 38 semester hours.

No more than 30 semester hours of credit in art courses the school will be counted toward the total of 124 hours of credit required for the degree. Transfer students majoring in studio must complete all The University of Iowa a minimum of 3 semester hours in art history, and 12 semester hours in studio beyond the basic studio courses and including at least two different studio areas.

Undergraduate transfer students majoring in studio must, at their first registration, show a portfolio to a faculty review committee, which will determine the student's placement in or exemption from the sequence of basic studio courses.

Art History Emphasis

Major requirements for the B.A. degree with an emphasis in art history are 9-12 semester hours of studio courses, as advised, and 15 semester hours of intermediate and advanced art history. Electives must raise the total of art courses to a minimum of 38 semester hours and may raise the total to a maximum of 50 semester hours. Art courses taken beyond this level do not count toward the B.A. degree.

Non-art credits must include two or more semesters of a second foreign language, and at least 16 semester hours in at least three areas, including two of the following: anthropology, classics, drama, history, language, literature, music, philosophy, religion, or sociology.

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

Art Education

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

1E:186 Concepts in Art Education

3 s.h.

1E:188 Art Education Studio

3 s.h.

1E:145 Methods: Art

3 s.h.

1J:105 Advanced Methods: Art

3 s.h.

1E:187 Seminar: Curriculum and Student Teaching

3 h.

The following courses are electives:

1E:187 Aesthetic Education of Children

2 s.h.

1J:187 Aesthetic Education of Children

2 s.h.

1E:290 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 major studio area, but before completion of 90 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 and major requirements listed above for the B.A. degree with studio emphasis, the B.F.A. candidate must complete three courses in major studio beyond the fundamental course, and must complete at least the second semester of studio work in each of two minor 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

As M.A. student in art history is expected to acquire a broad general knowledge of art history as an academic and humanistic discipline, become familiar with major periods and
monuments of world art; and gain proficiency in techniques of research within selected areas.

Specific requirements include:

- A Master of Fine Arts (M.F.A.) degree, with at least 18 semester hours of graduate work in art history
- A minimum of 50 semester hours of graduate-level coursework, with a grade-point average of 3.0 or higher
- At least one semester intermediate (100-level) course completed with at least a 3.0 grade in each of five of the following areas of art history:
  - Ancient (to 300 A.D.)
  - Medieval (300-1300)
  - Renaissance and Baroque (1300-1750)
  - Nineteenth Century to Modern
  - Oriental
- Primitive and Pre-Columbian

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

- MTH 294 Seminar: Methodology of Art History and Criticism (5 s.h.)
- Two other art history seminars (with different instructors) 4-6 s.h.
- Additional art history courses 14-21 s.h.
- Studio 0-6 s.h.
- Courses outside the school 0-9 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 will 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 coursework, with a minimum of 4 semester hours in each subject. In addition to the graduate requirement for a studio major, and also satisfy the drawing requirement. Studio courses may be taken on a satisfactory/unsatisfactory basis.

M.A. candidates with undergraduate majors in art history are 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 writings 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 (GSFLT), examination by the appropriate University of Iowa language department, satisfactory completion of the final semester of a Ph.D. language reading course, or satisfactory completion (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 and oral 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 studio M.A. majors in painting, drawing, sculpture, prints, design, photography, ceramics, metalworking and jewelry, or multimedia.

The degree requires:

- The B.A. or B.F.A. in art equivalent to that offered at The University of Iowa (undergraduate deficiencies, if any, may be made up concurrently with, but are in addition to, graduate requirements)
- At least 12 semester hours in a major studio subject, a total of at least 21 semester hours in studio courses, 9 semester hours in the history and theory of art, and up to 6 semester hours of courses outside art and art history; and
- Studio and written thesis

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, including MTH 294 Seminar: Methodology of Art History and Criticism, and one other seminar. These hours are in addition to the University's undergraduate requirement for an art

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;
- Either 12 semester hours of graduate credit in studio art and 6 in art history, or 6 in studio art and 12 in art history;
- 8 semester hours of graduate credit in art education; 12 semester hours of graduate credit in coursework to be specified after the student commences the program;
- An oral and/or written examination in art education and a related field; and
- A written thesis based on research in art education or art history, or a studio thesis, accompanied by a brief statement of the student's technical, aesthetic, and/or psychological approach.

Master of Fine Arts (studio only)

The school offers the M.F.A. degree with a major in painting, drawing, sculpture, prints, design, photography, ceramics, metalworking and jewelry, or multimedia. The M.F.A. candidate must have an M.A. degree in art equivalent to that offered at The University of Iowa, and a minimum of 80 semester hours of graduate work, including at least 12 semester hours in a major studio subject, at least 8 semester hours in a minor studio field, 9 semester hours in art history and theory of art, and 8 semester hours in courses outside the school. Thesis credits earned in an M.A. program are not applicable toward the M.F.A. credit requirement.
Doctor of Philosophy
(art history only)

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 first two regularly scheduled examination dates following admission.

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

The student must take a comprehensive examination in one major field (9 semester hours) and two minor fields (3 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 constituting an original scholarly contribution to the field. The student will allow up to 8 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 of all of the applicant’s supporting material. Contact the school for meeting dates.

Painting, ceramics, design, metalsworking or jewelry, or multimedia 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 (include figure drawings). Printmaking majors must submit from 8 to 20 original prints and drawings. Photography majors must submit a selection of original photographs. Sculpture majors should send 10 black-and-white photos—slides, it color is important—of their work. Studio applicants must also submit examples of their work in other areas, and must submit three letters of recommendation.

Graduate Admission:
Art History and Art Education

Applicants to the graduate program in art history must submit a term paper or other example of ability to write in the field.

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

Deadline for receipt of completed 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 $4,000 per academic year for 20 hours of departmental duties weekly are awarded to 15 percent of the students on a competitive basis. Half-time assistantships are also available. The award of an assistantship entitles the recipient to 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.

These 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 52,000 volumes; a visual materials library containing 190,000 slides and 80,000 photographs; an intaglio printshop; enamels 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 kiln facilities, including provision for construction of various types of temporary and specialized kilns; a large studio for woodworking, metalworking, and industrial design; electroforming equipment; and video equipment. While not a School of Art and Art History facility, the University’s Center for New Performing Arts involves the school’s faculty members and students in most of its activities. The Rockefeller Foundation established the center to encourage collaboration among such areas as art, dance, writing, film, music, and theater.

Courses

Art History

Primarily for Undergraduates

[List of courses in art history]

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Courses

Art History

Primarily for Undergraduates

[List of courses in art history]
Studio

Studio courses numbered through 99 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: Cubism

1.3.5 Problems in Design I—Form and Function

2.1.3.5 Preliminary studies of products and how they are designed, realizing stick and graphic communication techniques that explore elements of basic product development.

2.1.3.5 Presubmit a letter design developed through writing with bidirectional pens, leading to back-up sketches.

2.1.3.5 Exploring comprehensive potential of visual material on two-dimensional surfaces, combining image and letter forms, developing a visual vocabulary.

2.1.3.5 Lettering II

2.1.3.5 Combination of 2D: individual projects; development of orthogonal, vertical, isoline drawing, and general graphic design.

2.1.3.5 Presubmit 10:10:8:8, 5:5:5, and 5:5:5 squares and consistency of instruction.

2.1.3.5 Graphic Design II

2.1.3.5 Construction of 2D, including problems of visual communication, designing for the printing processes.

2.1.3.5 Graphic Design Workshop

2.1.3.5 Advanced problems in visual communication; design for specific purposes, architectural and environmental graphic design.

2.1.3.5 Technical Material I

2.1.3.5 Essential elements, including drafting and materials, applied in architectural and industrial design and related expertise to environments, interiors, trade and geographic design, may be required. Prerequisites: 10:10:5 and 10:10:5.

2.1.3.5 Environmental Design I

2.1.3.5 Architectural and physiological environmental design; and to understand how designers can help develop.

2.1.3.5 Material Design I

2.1.3.5 Design considerations related to human factors.

2.1.3.5 Material Design Workshop

2.1.3.5 Preassign a variety of products for mass production and preparation of process developments in technology and how they relate to human needs.

2.1.3.5 Advanced Problems in Design

2.1.3.5 Centers. Open to graduate students only. Prerequisite: consent of instructor.

2.1.3.5 Technical Material II

2.1.3.5 Architectural form and structure. Insulation and interior and external appearance possibilities.

2.1.3.5 Presubmit a letter specification.

2.1.3.5 Special permission signature.
Asian Languages and Literature

Department chair: Vincenz Fuchs
Professor: John Y. Inouye
Assistant: Thomas Bickel, Brenda Bickel, Robert Bickel, Maureen Robertson
Professor Adam Brooks

Supporting faculty: David Ankrum (History), Robert Beal (Religion), Jeanne Beal (Art and Art History), Paul Darlington (Anthropology), Paul Greenough (History), Cheng Lin-Chu (Political Science), Douglas MacKenzie (Philosophy), Wang Pei (Philosophy), Robert Renzo Art and Art History, Daniel Ruston (Sociology), Steven Vastia (History)

Instructor: S.Y. A.A.

Undergraduate Programs

The department offers two programs leading to the Bachelor of Arts degree, one primarily for those interested in studying the culture and civilization of traditional and modern Asia, and the other intended for those who wish to concentrate on developing competence in one of the Asian languages offered.

Graduates of either program may find careers in government, banking, and commerce in America and Asia. The programs also provide an excellent background for advanced study in literature, history, art, religious, political science, geography, anthropology, or sociology. The department urges its undergraduate majors to study in Asia as early as possible, and every effort is made to facilitate transfer of credit with universities in Asia.

Undergraduate majors are exempted from the literature core requirement and the cultural-historical core requirement of the College of Liberal Arts; the foreign language requirement is met by studying an Asian language.

The Program in Asian Studies

This multidisciplinary program is designed to introduce students in East and South Asia, culture, modern and traditional, and to contemporary political and social problems in Asia. Asian historians join language and literature faculty in teaching the courses. Each student selects a single area (e.g., China, Japan, or South Asia) upon which to concentrate for the purpose of study.

Courses for the major:

39:55-59 Civilizations of Asia 6 h.
39:18-20 Asian Humanities 3 h.

For students of Chinese studies:

39:6-8 First-Year Chinese 12 h.
39:10-11 Second-Year Chinese 12 h.

For students of Japanese studies:

39:6-8 First-Year Japanese 12 h.

For students of South Asian studies:

39:21-22 First-Year Sanskrit 8 h.
39:183: Asia: Half the World 3 h.

Additional courses relating to Asia 6 h.

Major in Asian Languages and Literature

Courses in history and literature provide an understanding of the cultural background for language study. Courses requirements for the major:

39:35-56 Civilizations of Asia 8 h.
39:18-20 Asian Humanities 8 h.

For students of Chinese:

39:4-6 First-Year Chinese 12 h.
39:10-11 Second-Year Chinese 12 h.

For students of Japanese:

39:105-108 Third-Year Japanese 12 h.

For students of Sanskrit:

39:21-22 First-Year Sanskrit 8 h.

Two seminars of:

39:183: Readings in Sanskrit Texts 3 h.

Students with previous knowledge of Chinese, Japanese, or Sanskrit will be tested before registration, and will be placed in the appropriate course at an advanced level.
Honor

Students with junior status who maintain a 3.25 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, the student must complete an acceptable thesis based on original research in an appropriate area of Asian studies.

Master of Arts in Asian Civilization

Graduate study in Asian civilization is designed to prepare students for careers in high school teaching, government service, or commerce, where a knowledge of an Asian language and a culture would be helpful. It also provides excellent preparation for advanced study on the doctoral level. All students are required to write an M.A. thesis in English using Chinese, Japanese, or Indian language sources. The thesis may count for 4 semester hours of the 30 required. All students must maintain a 3.0 grade-point average.

Students will be required to demonstrate language competence by passing a departmental examination at the conclusion of the program. Language competence for students of Chinese and Japanese will be at the level of the contemporary modern and first-year classical language, for students of modern South Asia, at the level of the completion of third-year Sanskrit; for students of modern South Asia, at the level of second-year Sanskrit.

In addition, students will be examined on the history of China, Japan, or South Asia, and in two appropriate areas from among Chinese, Japanese, or South Asian history, literature, art, or religion; Chinese linguistics, or philosophy; Japanese anthropology, linguistics, or politics; or South Asian social sciences. The department can accommodate native speakers of Chinese or Japanese who wish to work 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 Asia, as well as 4 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 3.75 is required for conditional admission, 3.0 for regular admission. In addition, applicants must submit a specimen of their writing—such as a term paper, written paper, or graduate thesis—to the Department of Asian Languages and Literature. All applications for graduate awards for the following academic year are due March 15. Applications for admission without support will be accepted until July 10 for the fall semester or December 15 for the spring semester. The candidate is advised to take the Graduate Record Examination at an early date, since an admission decision cannot be made until scores are received.

Library Facilities

Since 1960 the University library has been purchasing all books on Asia issued by major publishers in Western languages. The library's reference collection in the Chinese and Japanese languages is more than adequate for basic research; it includes approximately 35,000 books, periodicals, and microfilms. It is particularly strong in literature, history, art, and philosophy, and it is constantly being augmented by purchases of books and periodicals necessary for research on contemporary society. The library regularly acquires publications from India in Sanskrit and English.

Courses

Undergraduate Language

39:1 Chinese for Natives 4 s.h.
Introduction to spoken Mandarin, with some attention to the literature and culture of the people through folk tales, fables, music, and literary genres.

39:2 Japanese for Natives 4 s.h.
Introduction to spoken Japanese, for undergraduates, with emphasis on spoken language used for communicating and living in Japan, written language introduced to Japanese culture and civilization.

39:3 Chinese for Non-Natives 4 s.h.
Further preparation of language with more emphasis on the written language. Continuation of 39:2, which is prerequisite.

39:4 Japanese for Non-Natives 4 s.h.
Continued emphasis on written and spoken Japanese, with an oral introduction to the writing system. Continuation of 39:3, which is prerequisite.

39:1 First-Year Japanese 4 s.h.
The course teaches the sound system of Mandarin Chinese, basic grammatical patterns, reading and writing Chinese characters, and the B.S. foreign language requirement. Offered fall semester.

39:2 First-Year Japanese 4 s.h.
Interactive introduction to modern Japanese. Satisfies the B.S. foreign language requirement. Offered fall semester.

39:3 First-Year Chinese 4 s.h.
Together with 39:4, satisfies the B.A. foreign language requirement. Offered spring semester. Continuation of 39:2 or 39:3, either of which is prerequisite.

39:4 First-Year Japanese 4 s.h.
Offered spring semester. Continuation of 39:1 or 39:2, either of which is prerequisite. Satisfies the B.S. foreign language requirement.

39:1 Second-Year Chinese 4 s.h.
Continues the audio-visual approach of 39:1. Continues to enhance the vocabulary and sentence structure of modern Chinese through newspaper articles and, to some extent, popular songs. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:2 Second-Year Japanese 4 s.h.
Satisfies foreign language requirement. Continuation of 39:2 or 39:3, either of which is prerequisite.

39:3 Second-Year Japanese 4 s.h.
Offers spring semester. Continuation of 39:2, which is prerequisite.

39:1/39:2 Second-Year Japanese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:1/39:2 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.A. foreign language requirement. Offered spring semester. Continuation of 39:2, which is prerequisite.

39:1/39:2 Second-Year Japanese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:1/39:2 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.A. foreign language requirement. Offered spring semester. Continuation of 39:2, which is prerequisite.

Continues 39:3 or 39:4. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:3 or 39:4. Satisfies the B.A. foreign language requirement. Offered spring semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.A. foreign language requirement. Offered spring semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

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Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

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Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.

39:3/39:4 Second-Year Chinese 4 s.h.
Continues 39:1 or 39:2. Satisfies the B.S. foreign language requirement. Offered fall semester. Continuation of 39:2, which is prerequisite.
Language Courses for Graduate Students

26:108 Classical Japanese
Introduction to classical Japanese of the late Chosun period, utilizing primarily from Chosun-era sources with introductory grammatical analysis and essay composition. Offered fall semester. Prerequisite: 26:111. 4 h.

26:110 Classical Japanese
Grammar and readings in classical Japanese. Prerequisite: 26:110. 4 h.

26:109 Classical Chinese
Offered spring semester. Continuation of 26:108, which is prerequisite. 4 h.

26:106 Traditional Chinese
Further readings in classical Chinese literature. Continuation of 26:105, which is prerequisite. 4 h.

26:105 Elementary Chinese
Introduction to Chinese Classical Literature. Continuation of 26:102, which is prerequisite. 4 h.

26:102 Beginning Chinese for Graduate Students I
An introduction to Chinese for graduate students. Continuation of 26:101, which is prerequisite. 4 h.

26:111 Beginning Chinese for Graduate Students II
Continuation of 26:111, which is prerequisite. 4 h.

26:112 Beginning Graduate Chinese I
Continuation of 26:112, which is prerequisite. 4 h.

26:113 Beginning Graduate Chinese II
Continuation of 26:113, which is prerequisite. 4 h.

26:114 Beginning Graduate Chinese III
Introduction to graduate students. Prerequisite: 26:113. 4 h.

26:115 Beginning Graduate Chinese IV
Continuation of 26:114, which is prerequisite. 4 h.

26:116 Beginning Graduate Chinese V
Continuation of 26:115, which is prerequisite. 4 h.

26:117 Beginning Graduate Chinese VI
Continuation of 26:116, which is prerequisite. 4 h.

26:118 Beginning Graduate Chinese VII
Continuation of 26:117, which is prerequisite. 4 h.

26:119 Beginning Graduate Chinese VIII
Continuation of 26:118, which is prerequisite. 4 h.

26:120 Reading in Modern Chinese
Advanced preparation in modern Chinese and literature. Prerequisite: 26:119. Same as 26:120. 4 h.

26:121 Further Chinese
Further development of language proficiency through reading of modern texts. Prerequisite: 26:120 or equivalent as demonstrated by oral and written examinations. 4 h.

26:113 Four-Part Japanese
Introduction to ancient Japanese literary and expository texts. Prerequisite: 26:101 or equivalent as demonstrated by oral and written examinations. 4 h.

26:122 Four-Part Chinese
Continuation of 26:113, which is prerequisite. 4 h.

26:103 Intermediate Chinese
Selections from literature and literary texts of various periods. Continuation of 26:102, which is prerequisite. 4 h.

Literature Courses in English Translation

26:108 Japanese Literature
Introduction to classical Chinese literature of the late Chosun period, utilizing primarily from Chosun-era sources with introductory grammatical analysis and essay composition. Offered fall semester. Prerequisite: 26:111. 4 h.

26:109 Classical Chinese
Grammar and readings in classical Chinese. Prerequisite: 26:110. 4 h.

26:108 Classical Japanese
Grammar and readings in classical Japanese. Prerequisite: 26:110. 4 h.

26:109 Classical Japanese
Further readings in classical Chinese literature. Continuation of 26:108, which is prerequisite. 4 h.

26:110 Elementary Chinese
Introduction to Chinese Classical Literature. Continuation of 26:102, which is prerequisite. 4 h.

26:111 Beginning Chinese for Graduate Students I
An introduction to Chinese for graduate students. Continuation of 26:101, which is prerequisite. 4 h.

26:112 Beginning Chinese for Graduate Students II
Continuation of 26:111, which is prerequisite. 4 h.

26:113 Beginning Graduate Chinese I
Continuation of 26:112, which is prerequisite. 4 h.

26:114 Beginning Graduate Chinese II
Continuation of 26:113, which is prerequisite. 4 h.

26:115 Beginning Graduate Chinese III
Introduction to graduate students. Prerequisite: 26:113. 4 h.

26:116 Beginning Graduate Chinese IV
Continuation of 26:114, which is prerequisite. 4 h.

26:117 Beginning Graduate Chinese V
Continuation of 26:115, which is prerequisite. 4 h.

26:118 Beginning Graduate Chinese VI
Continuation of 26:116, which is prerequisite. 4 h.

26:119 Beginning Graduate Chinese VII
Continuation of 26:117, which is prerequisite. 4 h.

26:120 Reading in Modern Chinese
Advanced preparation in modern Chinese and literature. Prerequisite: 26:119. Same as 26:120. 4 h.

26:121 Further Chinese
Further development of language proficiency through reading of modern texts. Prerequisite: 26:120 or equivalent as demonstrated by oral and written examinations. 4 h.

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Introduction to ancient Japanese literary and expository texts. Prerequisite: 26:101 or equivalent as demonstrated by oral and written examinations. 4 h.

26:122 Four-Part Chinese
Continuation of 26:113, which is prerequisite. 4 h.

26:103 Intermediate Chinese
Selections from literature and literary texts of various periods. Continuation of 26:102, which is prerequisite. 4 h.

Civilization Courses—Instruction in English

26:111 Chinese Civilization
Introduction to Chinese civilization, covering background, translation, history, culture, civilization, and literature. Offered spring semester. Same as 26:111. 3 h.

26:112 Introduction to Chinese Literature
Introduction to the art of China, India, and Japan. Same as 26:112. 3 h.

26:120 Using Japanese
Japanese language and literature. For the non-Japanese student. Same as 26:120. 3 h.

26:106 Introduction to Japanese Culture
Introduction to the traditional culture and etiquette of men and women of modern Japan. Same as 26:116. 3 h.

26:107 Women In Asia
Focus, through study of biographies, novels, and reports, on the role of women in the Islamic and Buddhist world. Same as 26:107. 3 h.

26:122 Chinese Civilization
Introduction to traditional Chinese literature, including poetry, prose, drama, and dance in the Tang and Song periods. Same as 26:122. 3 h.

26:105 Japanese Civilization
Introduction to traditional Chinese literature, including poetry, prose, drama, and dance in the Tang and Song periods. Same as 26:105. 3 h.

26:108 Asian Civilization
Introduction to the arts of Asia, including poetry, prose, drama, and dance in the Tang and Song periods. Same as 26:108. 3 h.
**Bachelor of Science**

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

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

- **22M:15-26 Calculus III** 8 a.h.
- **23M:35-36 Engineering Calculus I-Il** 8 a.h.
- 29:17-18 **Introductory Physics I & II** 6 a.h.
- 37:3 **Principles of Animal Biology** 5 a.h.
- 2:1 **Introduction to Botany** 4 a.h.
- 61:157 **Survey of Immunology** 3 a.h.
- 61:175 **Survey of Microbiology** 4 a.h.
- 61:176 **Survey of Animal Biology** 4 a.h.
- **10:1 Biological Sciences Laboratory I** 2 a.h.
- **10:2 Biological Sciences Laboratory II** 2 a.h.
- 10:151 **General Biology Laboratory** 2 a.h.
- **10:152 Physical Biology Laboratory** 2 a.h.
- **10:153 Physical Biology Laboratory** 2 a.h.
- 10:155 **Physical Biology** 4 a.h.

**Bachelor of Arts**

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

- **22M:15 Mathematics for the Biological Sciences** 4 a.h.
- **22M:16 Calculus for the Biological Sciences** 4 a.h.
- **29:1 1-12 College Physics** 8 a.h.
- **37:3 Principles of Animal Biology** 5 a.h.
- **2:1 Introduction to Botany** 4 a.h.
- **61:157 General Microbiology** 4 a.h.

**Astrology**

*See "Physics and Astronomy."*

**Biochemistry**

Department head: Donald 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 actively developing sciences, and promises to remain so for some time to come.

Biochemists generally work in laboratories and/or classrooms. Those with the bachelor's degree are most often employed as research associates or laboratory technicians 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 teaching, research, and/or administrative careers in universities, medical schools, hospitals, private research agencies, and government laboratories; and in the food, drug, cosmetics, chemical, petroleum, and allied industries.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>65:150</td>
<td>Metabolism</td>
<td>3 a.h.</td>
</tr>
<tr>
<td>65:140</td>
<td>Experimental biochemistry</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>65:150</td>
<td>Biochemistry</td>
<td>4 a.h.</td>
</tr>
<tr>
<td>65:155</td>
<td>Biological sciences</td>
<td>at least 6 a.h.</td>
</tr>
</tbody>
</table>

**Honors Program**

Qualified students may earn an honors degree by doing special work in 98:140 Equivalential Biochemistry and 98:155 Biochernistry: Independent Study. The student presents the results of this or her research in a report written in the form of a journal article and in an oral report in 99:100 Seminar: Undergraduate.

**Teacher Certification**

Biochemistry students planning to qualify for teacher certification should include 75:100 Introductory to Secondary School Teaching, 78:151 Science
Methods of individual instruction in Science, and 75:152 Science Methods III: Resource and Teaching Strategies among the College of Education courses meet to gain certification requirements.

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 the growing 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 satisfy the requirements for remaining advanced biochemistry electives during the first year of dental or medical school.

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

Biology
Coordinator: Joseph P. Fleming
Degree Offered: B.A., B.S.

The major in biology is designed to further student understanding and appreciation of living organisms, and to prepare students for careers in which a detailed understanding of aspects of organisms is essential.

These careers include teaching, laboratory and field research and testing, clinical work, counseling, and administration in agricultural, environmental, and health sciences as well as numerous specialized and interdisciplinary areas. Potential employers include educational institutions, foundations, government agencies, publishers, industrial firms, hospitals, zoos, and museums.

Completion of an undergraduate major in biology generally prepares the student for work at a technical level, or for teaching secondary school (which also requires certification). It also prepares the student for entry into graduate or professional school in areas of biological science, medicine, and other health professions, agriculture, environment, and conservation programs, and related areas.

Graduate or professional education is generally required for teaching positions in higher education, for independent clinical work, and for the direction of laboratory and field research.

The Undergraduate Program

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1</td>
<td>Introduction to Botany</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:128</td>
<td>Principles of Animal Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:129</td>
<td>Fundamental Genetics Laboratory</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>37:131</td>
<td>Evolution</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:105</td>
<td>Cell Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:125</td>
<td>A Plan in Cells</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:152</td>
<td>Special Topics in Biology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

The biology 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:

2:1 Introduction to Botany 4 s.h.
37:128 Principles of Animal Biology 4 s.h.
*2:129 Fundamental Genetics or 37:129 Fundamental Genetics 3 s.h.
37:129 Fundamental Genetics Laboratory 2 s.h.
*2:131 Evolution or 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 2:100 Plants and Human Affairs, 37:125 A Plan in Cells, and similar courses directed primarily at nonscience students; and including no more than three semester hours in botany and zoology honors courses, and 2:152 Special Topics and 37:190 Introduction to Research.

Requirements for the major in biology also include these courses in other disciplines:

4:13-14 Principles of Chemistry 10 s.h.
4:16 Elementary Chemistry Laboratory I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
99:120 The Chemistry of Biological Materials 3 s.h.
29:11-12 College Physics 8 s.h.
29:17:18 Introductory Physics I & II 8 s.h.
22:22-26 Calculus I 4 s.h.
22:26-16 Calculus for the Biological Sciences 3 s.h.
22:26-35 Engineering Calculus I 3 s.h.
99:10 Expository Writing 3 s.h.

Minor
A minor in biology is available for students majoring in other subjects. The biology minor requires 18 semester hours of credit in botany, microbiology, zoology, and/or geology (paleontology) courses taken 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 taken on a pass-fail basis will not apply toward requirements for the minor in biology.

Honors
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 Zoology, including at least 2 semester hours in 21:100 Honors Laboratory Research or 37:100 Honors Laboratory
Graduate Programs

The departments of Botany and Zoology offer Master of Science degree programs in biology; for descriptions, see "Botany" and "Zoology" in this section of the Catalog.

Botany

Department chair: Jeffrey T. Schalke
Faculty: Professor Robert M. Oakes, Robert L. Holloway, Robert R. Mar, Jeffrey T. Schalke
Associate professor: W. Grant Carstens, Robert W. Grimes, Thomas E. McCook, Susan D. Schmal, John-Yung Wang
Assistant professors: James L. Hean, Helen N. Jin, Walker Loy
Graduate students: Ann A. Bussey, Robert D. Magove, John-D. R. Moore, Joseph A. E. Phalen
Degree offered: M.A., M.S., Ph.D. B.A., B.S. in biology, major in the Department of Zoology

Botany is a science contributing to our understanding of plants, their significance as a part of earth's living beings, their use in agriculture, reproduction, diversity, evolution, behavior, 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, pharmacy, and zoology.

Bachelor of Arts

In addition to the general requirements of the College of Liberal Arts, students majoring in botany are required to take:

2:1 Introduction to Botany 4 s.h.

One course from each of these five groups (20 semester hours total):

Genetics
2:104 Cytogenetics 3 s.h.
2:126 Fundamental Genetics 3-4 s.h.
2:160 Genetics and Biogeography of Crop Organisms

Physiology and Cell Biology
2:108 Plant Physiology 4 s.h.
2:110 Plant Anatomy 4 s.h.
2:114 Structure and Physiology of Plant Cells

Biology of Vascular Plants
2:11 Plant Diversity 4 s.h.
2:13 Biology of the Local Flora 4 s.h.
2:12 Plant Anatomy 4 s.h.
2:120 Plant Morphology 4 s.h.
2:121 Quantitative Palynology 2 s.h.

Biology of Non-Vascular Plants
2:170 Physiology 4 s.h.
2:105 Bryology 4 s.h.
2:107 Mycology 4 s.h.

Taxonomy, Ecology, and Evolution
2:104 Plant Taxonomy 4 s.h.
2:111 Plant Ecology 4 s.h.
2:116 Plant Taxonomy 4 s.h.
2:131 Evolution 4 s.h.

Two 100-level courses in botany or cognate fields (zoology, biochemistry, microbiology) 5 s.h.

Chemistry (inorganic, organic/biochemistry) 10 s.h.

22M:15 Mathematics for the Biological Sciences 4 s.h.
22M:20 Elementary Functions or equivalent

Recommended electives:
22M:25 Calculus I 4 s.h.
29:1-12 College Physiology 5 s.h.
14:3 Principles of Physical Geology 2 s.h.
12:4 Principles of Historical Geology 2 s.h.
61:157 General Microbiology 4 s.h.
108:120 The Chemistry of Biological Materials 3 s.h.

Entire majors are advised to obtain a strong background in courses in zoology.

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

Graduate Programs

The Honors Program

An undergraduate program leading to graduation with honors provides opportunities for participation in independent research projects guided by professional staff members. Prerequisites for admission to the program are senior standing and cumulative grade-point averages of 3.0 overall and 3.5 in botany.

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 averages required for admission to the program, and pass an honors examination at the end of the senior year.

Biology Major

Students interested in majoring in biology now have this alternative available to them. See "biology" in this section of the Catalog.

Master of Science in Botany

The department offers the degree with emphasis in anatomy, botany, biology, cell biology, ecology, genetics, development and morphogenesis, mycology, parasitology, plant physiology, or taxonomy. The degree requires at least 30 semester hours of graduate study, including 8 semester hours in 2225.
Research Botany, Preparation of a thesis is optional. Each student must:
Submit a program of study to be approved by a guidance committee.
Complete at least 15 semester hours of graduate coursework in botany, as prescribed by the guidance committee, and including no more than 6 semester hours of 2225 Research Botany and 2229 Thesis Botany. Achieve a grade-point average of 3.0 on all courses, other than 2225, attempted up to the time of the final examination; and
Take a written and oral examination covering coursework and research experience.

Master of Science in Biology
A student who has been regularly admitted to a graduate program in either the Department of Botany or the Department of Zoology may elect a course of study leading to the Master of Science degree in biology.

The degree requires at least 34 hours of graduate study without thesis, or 30 hours with thesis. Candidates for the degree without thesis must earn 6-8 semester hours of credit in research. Candidates for the degree with thesis must earn 4-5 semester hours of credit in research. Students can earn research credit for taking 2225 Research Botany, 371:189 Introduction to Research, and/or 371:303 Independent Study in Zoology.

Each student must submit a program of study to be approved by the department in which the student is enrolled. The program must include at least 32 semester hours of graduate courses in each of the two departments, exclusive of research, and may include 8-10 semester hours taken in supportive areas including biochemistry, microbiology, geology, and mathematics.

The student must achieve a 3.0 grade-point average in all courses other than research attempted at the time of the final examination, and pass a written comprehensive final examination covering the graduate program. For thesis candidates, there is also an oral examination, based mainly on the work reported in the thesis.

Doctor of Philosophy
The doctoral student may specialize in any of the areas of emphasis listed for the master’s degree in botany. The general requirements for the doctorate are the standard requirements established by the Graduate College. Upon admission to the Ph.D. program, a student must:
Submit a program of study toward the degree for approval by a guidance committee.
Take a qualifying comprehensive examination, at a time agreed to with the guidance committee, testing the student’s progress in understanding concepts and ideas in various divisions of botany, with some concentration in fields closely associated with the research specialty.
Submit a thesis to the Ph.D. final examination committee at least two weeks prior to the planned date of the final examination; and
Take the final examination, consisting of an oral defense of methods, results, interpretations, and conclusions presented in the thesis.

Graduate Admission
All prospective graduate students should be thoroughly familiar with the requirements of the Graduate College. Applicants should submit Graduate Record Examination (GRE) Aptitude Test scores when their applications, if possible.

If the entering student has little or no training in botany of biology, some introductory coursework will be required in accordance with the academic needs of the individual. In addition, mathematics at the level of analytic geometry and a year of organic chemistry are usually required of entering students. Courses prescribed by the student’s guidance committee should be made up during the first year of residence; these courses may be taken for reduced graduate credit. Students entering with a B.A. or B.S. degree from an accredited college or university should submit:
Scores on the GRE verbal and quantitative tests adding up to at least 1100: A transcript showing a grade-point average on all courses attempted equal to 3.0; and Letters of recommendation from at least three of their professors.

Students entering with an M.S. degree should submit:
Scores on the GRE verbal and quantitative tests adding up to 1200: A transcript showing a grade-point average equal to 3.4 on all courses attempted at the graduate level; and Letters of recommendation from at least three of their professors.

The numerical requirements listed above are not absolute. For example, a high level of academic achievement may compensate for a GRE score somewhat below the standard.

Special Facilities and Activities
There is an excellent departmental library in the Chemistry-Botany Building. Students conducting research projects requiring the cultivation of plants have access to greenhouses 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 plant physiology, photosynthesis, plant anatomy, molecular genetics, cytogenetics, ecophysiology, pollination biology, morphogenesis, and cell biology. There are two transmission electron microscopes in a special laboratory. Students and staff may use the Scanning Electron Microscope Laboratory in the Zoology Building. An herbarium for research and general study houses more than 200,000 specimens. These standard specimens include extensive collections of seed plants and ferns from Iowa and the Midwest, special research
Bachelors of Science

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

- 4.15-14 Principles of Chemistry I-II
- 17 Elementary Chemistry Laboratory I-II
- 4.50 Chemistry Orientation

Bachelor of Arts

The B.A. curriculum in chemistry provides a general education with some concentration in fundamental chemistry, but with a wider choice of electives than the B.S. curriculum includes. Students electing this program may qualify for high school teaching, provided they meet teaching certification requirements. By selecting appropriate electives, students can meet entrance requirements for medicine, dentistry, or other professional programs in the sciences, while satisfying the B.A. requirements in chemistry. These are the major requirements for the B.A. degree:

- 4.15-14 Principles of Chemistry I-II
- 4.16-17 Elementary Chemistry Laboratory I-II
- 4.50 Chemistry Orientation

Teaching Certification

The chemistry courses required for the B.S. or B.A. degree satisfy the major requirements for teaching in secondary schools. Chemistry courses through organic chemistry satisfy the requirements for a teaching minor in chemistry (see the "College of Education" section of the Catalog).
Candidates for the M.S. degree are required to obtain minimum grades of C in three of these courses or to meet the requirement by examination.


Entering students will be given the opportunity to take exemption examinations to demonstrate competence in these areas listed above. A minimum grade-point average of 2.5 is required for admission to the master's examination.

Doctor of Philosophy

A program of study for the Ph.D. degree in the areas listed for the M.S. degree includes the courses required for the M.S. degree, and courses in the major field of interest. The student must present a thesis covering the research.

Students who have demonstrated the required competence in the four areas of chemistry and who have maintained a minimum grade-point average of 3.0 are admitted to the oral examination upon presentation and preliminary approval of their research proposal.

A final oral examination is required of all candidates for the Ph.D. degree. The student must successfully defend a Ph.D. thesis and a manuscript of the publishable portion of the thesis before an examining committee.

Interdisciplinary Programs

The Department of Chemistry cooperates in interdisciplinary programs in applied mathematical sciences and in chemical physics (see "Graduate College" section in the Catalog). Students with undergraduate degrees in chemistry, physics, mathematics, or engineering are eligible.

Language Requirement for Graduate Students

The department requires graduate students majoring in organic chemistry to demonstrate reading competence in German.

Teaching Requirement for Graduate Students

The department requires all graduate students in chemistry to teach as part of their training.

Graduate Admission

An applicant for graduate admission should have a bachelor's degree in chemistry with a grade-point average above 3.0. Most of the graduate students who are admitted receive financial support, and application forms may be obtained by writing to the Department of Chemistry. Most assistantships and other appointments for the following academic year are filed by April 1, but there are occasional openings at the beginning of the second semester.

Facilities

The department is housed in a five-story building containing two auditoria, 5 lecture rooms, 21 undergraduate laboratories, 43 graduate research laboratories, a computer laboratory, and a number of special-purpose instruction rooms. Modern scientific equipment is available for research.

The department's excellent library facilities are available to all students. The library contains standard reference works and complete volumes of chemical and chemical engineering journals, and subscribes to over 500 current scientific journals.

Courses

Primary for Undergraduates

Students planning to take more than one year of chemistry should take 4/13, 4/14, and 4/16. Students requiring only one year of chemistry may take 4/7, 4/8, and 4/9. Students requiring eight semester hours of organic chemistry should take 4/121, 4/122, and 4/141.

4/1 General Chemistry 4 3.0 hours introduction to organic and inorganic chemistry for students who do not plan to take more advanced courses in chemistry. Prerequisite: 4/7 or high school chemistry.

4/2 General Chemistry 3 3.0 hours introduction to laboratory techniques for students taking 4/7. Prerequisite or corequisite: 4/2.

4/15 Principles of Chemistry 3 3.0 hours introduction to basic principles of chemical bonding and chemical reactions. Prerequisite: 4/121 or high school algebra.

4/16 Principles of Chemistry 3 3.0 hours introduction to laboratory techniques for students taking 4/15. Prerequisite: 4/15 or 4/7.

4/18 Chemistry: Chemistry Laboratory 3 3.0 hours laboratory sessions for students taking 4/15. Prerequisite: 4/15.

4/17 Chemistry: Chemistry Laboratory 3 3.0 hours laboratory sessions for students taking 4/15. Prerequisite: 4/15 or 4/7.

4/90 Seminar/Seminar Laboratory 4 4.0 hours first principles of qualitative analysis, twin lecture and two laboratory sessions weekly. Prerequisite: 4/14 and 4/18.

4/111 Biblical Chemistry 3 3.0 hours principles of modern analytical chemistry with an emphasis on instrumental methods of analysis. Prerequisite or corequisite: 4/121.

4/112 Biblical Chemistry 3 3.0 hours continuation of 4/111, which is prerequisite. Prerequisite: 4/111.

4/215 Physical Chemistry I 3 3.0 hours general principles illustrated by preparation and study of representative binary and polyatomic systems. Prerequisite: 4/121 or 4/13.

4/216 Physical Chemistry II 3 3.0 hours continuation of 4/121, which is prerequisite.

4/217 Introductory Medical Chemistry 3 3.0 hours introduction to medical chemistry.

4/218 Mechanics, Kinetics, and Reaction Kinetics 3 3.0 hours mechanics, kinetics, and reaction kinetics.

4/219 Physical Chemistry for the Life Sciences 3 3.0 hours principles and applications of biochemistry: transport, enzymes, diatoms, cell membranes and the cell membrane, metabolic pathways, chemical reactions in larger systems, elements of information theory. Prerequisite: 4/122 and one semester of calculus.
4310 Introduction to Analytical Chemistry 3 s.h.
Laboratory methods and principles for fundamental
analytical problems in environmental chemistry.
Prerequisites: 2311.
4311 Analytical Chemistry and Applications 3 s.h.
Theory and practice of quantitative analysis in science.
Prerequisites: 2311.
4312 Advanced Analytical Chemistry 3 s.h.
Theory and practice of specialized methods in
analytical chemistry. Prerequisites: 2311 and 4311.
4313 Chemical Spectroscopy 3 s.h.
Applications of spectroscopic methods to problems
in environmental chemistry. Prerequisites: 4311.
4314 Instrumental Analysis 3 s.h.
Instruments and techniques for quantitative analysis.
Prerequisites: 2311 and 4311.
4315 Inorganic Chemistry 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4316 Advanced Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4317 Introduction to Spectroscopy in Analytical Chemistry 3 s.h.
Elementary spectroscopic methods. Prerequisites: 4311.
4318 Physical and Analytical Measurements 3 s.h.
Prerequisites: 4311.
4319 Inorganic Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4320 Organic Chemistry 3 s.h.
Preparation of organic compounds. Prerequisites: 2311.
4321 Advanced Analytical Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4322 Introduction to Physical Chemistry 3 s.h.
Prerequisites: 2311.
4323 Introduction to Inorganic Chemistry 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4324 Introduction to Chemistry 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4325 Inorganic Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4326 Advanced Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4327 Introduction to Analytical Chemistry 3 s.h.
Prerequisites: 2311.
4328 Special Topics in Analytical Chemistry 3 s.h.
Prerequisites: 2311.
4329 Introduction to Organic Chemistry 3 s.h.
Preparation of organic compounds. Prerequisites: 2311.
4330 Special Topics in Organic Chemistry 3 s.h.
Prerequisites: 2311.
4331 Advanced Inorganic Chemistry 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4332 Advanced Physical Chemistry 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4333 Advanced Organic Chemistry 3 s.h.
Preparation of organic compounds. Prerequisites: 2311.
4334 Advanced Physical Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4335 Advanced Physical Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4336 Advanced Chemical Engineering 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4337 Advanced Chemical Engineering Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4338 Advanced Chemical Engineering Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4339 General Chemistry 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4340 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4341 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4342 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4343 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4344 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4345 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4346 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
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Preparation of inorganic compounds. Prerequisites: 2311.
4348 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4349 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4350 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4351 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4352 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4353 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
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4355 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
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4358 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4359 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4360 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4361 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4362 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4363 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4364 General Chemistry Laboratory 3 s.h.
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4365 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
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4372 General Chemistry Laboratory 3 s.h.
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4373 General Chemistry Laboratory 3 s.h.
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4374 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4375 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4376 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4377 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4378 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
4379 General Chemistry Laboratory 3 s.h.
Preparation of inorganic compounds. Prerequisites: 2311.
Major in Greek

A student majoring in Greek must (a) know not only how to read the Greek language but also know some of the major works of Greek literature, and something of the history of ancient Greece and the Near East of the seventh through the fifth centuries B.C., when most of the hidden western notions of political, ethical, and social life began.

For a B.A. degree with a major in Greek, the candidate must earn a minimum of 30 semester hours of major credit, of which 24 semester hours must be in Greek language courses. These courses, or their equivalents, are required:

- 14:1-2 Elementary Greek (6 s.h.)
- 14:11-12 Second-Year Greek (6 s.h.)
- 14:121-122 Homer and Hesiod I-II (6 s.h.)
- 14:161 Greece and Persia (3 s.h.)
- 14:162 Fifth-Century Athens (3 s.h.)
- 14:171 Elementary Greek Composition (3 s.h.)

Major in Latin

A student majoring in Latin must (a) know how to read Latin as well as understanding some aspects of the Roman republic and empire when Rome established its hegemony over the Mediterranean basin, laid the foundation of law for the western world, and transmitted the culture of Greece to the west.

The candidate for a B.A. degree with a major in Latin must earn a minimum of 36 semester hours of major credit, of which at least 24 semester hours must be in Latin language courses. These courses, or their equivalents, are required:

- 20:1-2 Elementary Latin (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.)
- 22:171 Elementary Latin Composition (3 s.h.)

Two Latin language courses, 100-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 20 semester hours must be in Greek and Latin language courses. These courses, or their equivalents, are required:

- 14:1-2 Elementary Greek (6 s.h.)
- 14:11-12 Second-Year Greek (6 s.h.)
- 20:1-2 Elementary Latin (6 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.)

Core Requirements

Undergraduates who major in Greek, Latin, classics, or ancient civilization are excepted from 4 semester hours of the College of Liberal Arts literature core requirement, but must complete 11:1 The Interpretation of Literature. For students majoring in ancient civilization, core requirements in the historical-cultural sequence are limited to 4 semester hours.

Honor

For exceptional seniors who attained a 3.5 grade-point average at their first three years of classics courses, two courses are offered in honor reading, one each semester of the senior year, for 3 semester hours of credit each semester. The readings and discussions are on either an ancient author or a field in ancient history or literature choused by the student and the instructor. During the first semester the student presents an essay every other week. At the end of the second semester the student presents a long paper which is examined by at least three members of the department.

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 at 20:16 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 6 semester hours of courses numbered 101-199.
Special Facilities

Ensemble performances of classical and popular music in the University library and the art library facilitate research in the major areas of Greek and Roman civilization.

The department has a vast collection of slides on classical archaeology, and a small library.

Associated with the department, the classical museum contains a valuable collection of coins, vases, and fragments in bronze from Myconos, Pompilii, and Hierapolis.

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

The library is also a contributing member of an international group that is sponsoring the uncovering and publication of information about the ancient mosaics of Turkey. Annually a teacher from the University goes to Turkey to work on this project.

Courses

Greek

For Undergraduates Only

120 Elementary Greek

Foundation of Attic Greek and basic concepts of Greek composition.

142 Elementary Greek

From Greek authors. Continuation of 141, which is prerequisite.

163 New Testament Greek

Intended for students majoring in New Testament Greek. Prerequisites: Greek and 162. No laboratory for any other foreign language. Orient summer session.

188 New Testament Greek

Reading and selecting from the Greek New Testament. Prerequisite: 163 or equivalent. Orient summer session.

For Graduates

1420 Greek Prose and Poetry

5 thc.

Study of Greek prose through fifth century, upper class, satirical, and comic literature. Emphasis on historical, literary, and sociological background of the material. Orient summer session.

1423 Greek Prose and Poetry

5 thc.

Study of Greek prose through fifth century, upper class, satirical, and comic literature. Emphasis on historical, literary, and sociological background of the material. Orient summer session.

1424 Greek Prose and Poetry

5 thc.

Study of Greek prose through fifth century, upper class, satirical, and comic literature. Emphasis on historical, literary, and sociological background of the material. Orient summer session.

1425 Greek Prose and Poetry

5 thc.

Study of Greek prose through fifth century, upper class, satirical, and comic literature. Emphasis on historical, literary, and sociological background of the material. Orient summer session.
For Graduates and Undergraduates

For Undergraduates

For Graduates
Communication and Theatre Arts

Department chair: Samuel L. Becker
professors emeritus: Albert C. Bragg, Joseph dramatic, H. Gray Harnsberger, Cordell Harnsberger, Hugh P. Becker
associate professors: Nancy L. Hargrave, Michael Can, William, Judith Schild, Frank Tomlin, Robert Fraser, Douglas French, John White assistant professors: Ann Chancellor, Robert Kemp, Bruce Leff, John Wieland, Terry McClure
instructors: William York, George Conjugal, Jennifer Martin, James Westervelt

The Department of Communication and Theatre Arts is concerned with communication as a means of personal expression and development; with communication as the means by which people adjust themselves to their society and their environment; with the process of 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 better understand communication processes, and to improve abilities to communicate effectively, whether as actors or directors, community leaders, supervisors, participants in a group, film-makers, broadcasters, designers, playwrights, teachers, spouses, or parents.

The department has six major divisions, whose emphasis 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 of 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 one course in the theatre arts division, at least one course in the broadcasting and film division, and at least one course in the communication division;

A minimum of eight semester hours of production/performance courses; and

A minimum of eight semester hours of nonproduction/nonperformance courses in the department.

A student may specialize in communication, theatre arts, broadcasting and film, or communication education. The additional requirements for these majors are cited in the division sections.

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. The M.A. degree with an emphasis in corporate communication is an interdivisional degree.

Departmental requirements for the Master of Arts degree are:

A minimum of 30 semester hours, including 30600 Introduction to Research or its equivalent;

A research thesis or, for 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 dissertation and graduate committee; and

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

The application deadline for the fall semester or summer session is February 1 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 Junior College Teaching)

Departmental requirements for the Educational Specialist degrees are:

A minimum of 60 semester hours, including 30600 Introduction to Research, a course in the teaching of communication; an approved seminar; and at least 16 semester hours completed in the College of Education’s graduate program in higher education;

Successful completion of a research report;

A semester’s internship in an assigned teaching position;

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

Successful completion of such additional requirements as are specified by the departmental division in which the student’s work is concentrated.

Doctor of Philosophy

Departmental requirements for the Doctor of Philosophy degree are:

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

301. Principles of Speech Communication 3 h.

302. Contemporary Communication Education 3 h.

303. Contemporary Communication Education 3 h.

Communication

304. Discussion in Debate 3 h.

305. Business and Professional Speaking 3 h.

306. Community Reporting 3 h.

307. Contemporary Community Reporting 3 h.

308.-theory and methods of mass communication, especially newspaper journalism, radio and television, and electronic media. and the application of methods for research.

309. Political Science 3 h.

310. Organizational Leadership 3 h.

311. Communication and Current Society 3 h.

312. Resistance to Persuasion 3 h.

313. Examination of problems and methods relevant to persuasion in mass media, advertising, public relations, and political campaigns, and the evaluation of methods for research.

314. Communication and Contemporary Culture 3 h.

315. Theoretical and Practical Aspects of Persuasion 3 h.

316. Media and Social Change 3 h.

317. Communication and Contemporary Society 3 h.

318. Communication and Contemporary Society 3 h.

319. Communication and Contemporary Society 3 h.

320. Communication and Contemporary Society 3 h.

321. Communication and Contemporary Society 3 h.

322. Communication and Contemporary Society 3 h.
Communication Research

Professor is change: John W. Zawor
Degree offered: M.A., Ph.D.

The program in communication research leads either to the M.A. or the Ph.D. degree. Programs designed for individual students provide background for and experience in experimental research on interpersonal communication, group communication, and the mass media. Candidates are expected to take work in related social sciences in addition to the general requirements of the Department of Communication and Theatre Arts, and to select appropriate courses from those listed below.

In general, Ph.D. candidates in this program must complete the statistics sequence in the Department of Psychology or in the College of Education, and take 26:203/204 Philosophical Problems of the Social Sciences in the Department of Philosophy. Work in advanced statistics and computer science may be used to fulfill the research tool requirements of this department.

Opportunities for varied research is in addition to that required for thesis or dissertation projects are available in the department’s communication research laboratory. Several original studies in preparation for dissertation and later research are required of doctoral candidates.

Courses

50.50 Communication Theory

As previously discussed, this is a good introduction to the study of communication. Same as 14:207.

50.202 Group Communication Theory and Research

Survey of small-group research and theory.

50.333 Research Methods in Communication

Principles and methods of designing and executing experimental research in communication.

50.204 Communication Research

Review and analysis of research in communication from a social science perspective.

50.324 Qualifications of Communicative Behaviors

Principles and methods of analyzing and interpreting communicative interactions, including language behavior.

50.308 Research Procedures

Specialization in composition of individual research projects that can later be carried to another course or for original research.

50.628 Seminars: Language Variables

Research problems in perspectives of language, varying from semester to semester. Same as 10:257.

50.621 Seminar: Problems in Group Communication

Focus on problem area in small group research, program varies each year, term.

50.622 Seminar: Communication Research

Focus of special shape, form of topic to be a term. Topics depend on methodological issues and communication content.

50.623 Seminar: Historical and Communication Theory Seminar

Critical for and current work in exploring historical and communication theories.

50.624 Seminar: International Communication

Recent theoretical studies and research in international communications, topics may be carried on social psychology, self-disclosure, and mutual interaction.

Rhetorical Studies

Professor in charge: Bruce E. Groenich
Degree offered: M.A., Ph.D.

The program in rhetorical studies leads either to the M.A. or the Ph.D. degree. It is built upon foundational courses in the history of rhetorical practices, the criticism of rhetorical discourse, and theoretical relationships between rhetorical activism and other dimensions of society. The foundation course in history and criticism are offered on the 100- and 200-level, and are listed under "Communication" (see above). More specialized seminars (300- level) and seminars (400-level) allow students to develop particular expertise in various approaches to rhetoric and communication.

The Master of Arts Program

The areas of the M.A. program in rhetorical studies is upon basic knowledge of rhetorical history, criticism, and theory. That goal normally is met by work both within the division and in other parts of the department and University. The degree is intended to build a strong foundation for teaching in high schools and junior colleges or for proceeding to the doctorate. Efforts are made to tailor individual programs of study to students' needs and career goals. Minimal requirements for the M.A. in rhetorical studies include:

50.200 Introduction to Research; At least 15 hours of courses in rhetorical studies, including a seminar; At least 6 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.
The Doctor of Philosophy Program

The program leading to the Ph.D. degree in theatrical studies is designed to give candidates a mature grasp of the various specialties and perspectives embraced in this division and to develop research competencies 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 theoretical studies' course offerings.

For basic requirements, see the department's description.

Courses

368.01: Classical Theatre
Thematics and philosophies of drama in the ancient world. Same as 325L.

368.02: Research in Language Theory
Critical examination of recent theories of language, from semantics, linguistics, and other disciplines, with emphasis on their relationship to rhetoric. Same as 422G.

368.03: Rhetoric and Philosophy
Comparative philosophical approaches to argument and persuasion. Same as 325L.

368.04: Rhetoric and Social Theory
Survey of arguments concerning the effects of persuasive discourse on mass audiences, with emphasis on the theoretical review of social and historical change.

368.06: Studies in Political Communication
Comparative and critical examination of the role of political communication in democratic societies with emphasis on the operation of oral and written political rhetoric.

368.07: Politics of Revolutions and Reform
Case studies of the history of symbols in catastrophic change, topics vary. Prerequisite: 368.03 or permission of instructor.

368.08: Seminar: Rhetoric and Public Discourse
Guided investigation of selected theories and practices of public discourse. Subject varies by semester.

368.09: Seminar: Argument
Studies in the philosophy of argument, with special attention to the work of recent writers in ethical, legal, political, and social rhetoric.

368.10: Seminar: Speech Arts
Studies in the analysis of speech acts, with special attention to the works of Austin and Searle.

368.11: Seminar: Communication, Culture, and the Popular Arts
Examination of media in which cultural norms and communicative codes shape the popular arts of any given speech.

368.12: Seminar: Critical Analysis
Examination of major aesthetic theories and the explanatory power of such theories in the analysis of communication and communicative arts.

368.13: Seminar: Communication and Society
Guided investigation of theories of interaction and development, and their utility in accounting for patterns of human communication.

Broadcasting and Film

Professors in charge: Dorothy Andrew, Robert Pepper
Degrees offered: B.A., M.A., Ph.D.

Bachelor of Arts

This program is intended for students interested in mass communication as the focus of a general liberal arts education or in broadcasting and film careers. The program assumes that anyone pursuing a career in film or broadcasting must not only acquire technical expertise, but also ground that expertise in an understanding of the media and their place in society. Conversely, it assumes that no one can understand the history, theory, and criticism of the new media totally apart from the experience and knowledge of production.

Students emphasizing production will learn how to write, plan, shoot or record, edit, and present film, radio, or television programs. In addition, they will obtain a background in the history of the media so that they understand the reasons for the industry's present state. A grounding in media theory and criticism will teach the student to differentiate between good and mediocre programming, 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 aesthetic, society, and communication all come together in our discipline, making it an excellent place to study people and their institutions, aspirations, and creations.

In short, the broadcasting and film major is one in which vocationally concerned students and general liberal arts students interact constantly and profitably.

Graduate Programs

The Master of Arts degree emphasizes research in critical, theoretical, historical, and policy issues relating to broadcasting and film. M.A. candidates in film can emphasize production in a plan of study balancing the artistic and scholarly aspects of the field. The Ph.D. programs in both broadcasting and film are individually tailored by each candidate and an advisory committee to develop competence in research and criticism.

Facilities

The broadcasting and film division is housed in the University's Television Center. The center, known on campus as Old Armour, houses fine broadcasting and film production facilities devoted exclusively to instruction. A large television studio/sound stage is equipped with modern television equipment, including color cameras. Students have the opportunity to use a variety of types of video and audio recording equipment in both studio and film/post-production settings, along with video as well as audio editing facilities.

The University's two radio stations, WUSB (AM) and KSUI (FM), offer facilities for radio production classes and independent study.

A large film editing equipment is also available for students in broadcasting and film courses. Students can gain experience with a variety of cameras, sound and lighting equipment, editing equipment (including fiber-optic editing machines), and film editing courses except the introductory one are taught with 16 mm equipment. The University maintains both a complete film processing laboratory and a sound mixing studio.

The University Library contains an outstanding collection of film and broadcasting materials.

Requirements for a major in the division include 388.01 Introduction to Broadcasting and Film Production, a minimum of 6 hours of advanced production, a minimum of 9 hours of nonproduction courses (at least 6 must be at level three or above), and one course each from the divisions.
credit to be planned in consultation with an advisor in order to emphasize multidisciplinary approaches to communication. Four courses are required for all majors:

122:101 Introduction to Linguistics 3.0 a.h.

122:80 Communication and Contemporary Culture 3.0 a.h.

122:81 Mass Media and Mass Society 3.0 a.h.

122:82 Communication Theory: Everyday Life 3.0 a.h.

122:100 Cultural and Historical Foundations of Communication 3.0 a.h.

122:103 Social Scientific Foundations of Communication 3.0 a.h.

122:99 Senior Seminar 1-3 a.h.

Courses

122:80 Communication and Contemporary Culture
Same as 192:101; 120:90.
3.0 a.h.

122:81 Mass Media and Mass Society
Same as 363:04.
3.0 a.h.

122:82 Communication Theory: Everyday Life
Same as 363:03.
3.0 a.h.

122:99 Senior Seminar
3.0 a.h.

122:99 Senior Seminar: Introduction to Communication Research Methods
Same as 120:99, 192:99.
3.0 a.h.

122:100 Cultural and Historical Foundations of Communication
Same as 192:100.
3.0 a.h.

122:103 Social Scientific Foundations of Communication
Same as 192:103.
3.0 a.h.

Comparative Literature

Program Chair: Rudolf E. Kassulke
Faculty: professors C. Claire Andrew, Doris Delargy, Paul Herde, Donald Mandel, and R. P. Nagel
associate professors Charles F. Alman, R. E. Mandel, Maureen Robertson, Steven Urban, and Daniel Weisburd
assistant professor Thomas E. Lewis, Geoffrey Wols.

Faculty selecting the program: In addition to its own faculty, the Program in Comparative Literature calls upon the services of faculty members in various other areas, including classics, East Asian languages and cultures, communication and theories of art, English, French, German, Italian, Portuguese, Russian, Spanish, and Portuguese.

The purpose of the Program in Comparative Literature is to present literature as an interdisciplinary and international study and to provide a base for intensive work in literature, literary theory, and critical method. Undergraduates interested in comparative studies are encouraged to investigate the major in letters, which is closely coordinated with comparative literature.

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. The student, in consultation with faculty advisers, combines courses in the program and in the individual affiliated departments to design a coherent course of study.

Formal degree requirements may be satisfied by a written examination on reading lists agreed upon by student and advisers, or by a written thesis and oral examination on the thesis and its relation to problems and issues in comparative literature. The M.A. may be awarded after 45 semester hours of graduate study with a grade-point average of 3.65, and successful completion of the comprehensive examination for the Ph.D.

Doctor of Philosophy

Students seeking the doctorate in comparative literature study at least three literatures: one is studied in historical depth, and two others in limited areas of specialization. An interdisciplinary area of concentration is encouraged. All candidates devote a portion of their programs to comparative study that brings the several areas into focus. Specific areas and interrelations of these areas are specified by the student in consultation with appropriate faculty members.

Some typical critical and comparative areas are:

- European Renaissance
- Romanticism
- Structuralism and post-Structuralism
- New critical theory
- Symbolic and modern literature
- Post-Structuralist and postcolonial literature
- Symbolics
- Post-Freudian and modern literature
- Symbolic and modern literature

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 be acceptable as a dissertation. The final oral examination centers on the dissertation and its background.

Admission

A study of literature across linguistic boundaries requires special training in languages. A thorough knowledge of at least one foreign language is required for admission to the M.A. courses of study; knowledge of at least two foreign languages is a prerequisite for doctoral study. Students are encouraged to offer at least one classical language.

For further information, consult the procedural guide for graduate students in comparative literature, available by request from the program office.
Economics

Department chair: Timothy W. McLellan
Faculty: professors Jared Bernard, John Fulker, James Jeffrey, Walter Kruse, Wayne Procter, Timothy McNally, David Mowry, Thomas Propper, Carmen Santos, E. V. Wu, C. Richard Zecher

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

The Department of Economics teaches students how complex economic systems work and undertakes to train them in methods of economic analysis that can be applied to a broad set of economic problems. The department offers a wide range of coursework to meet the needs of the nonmajor as well as the major.

Undergraduate Programs

The baccalaureate programs in economics provide an excellent background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations, and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economics is also considered excellent preparation for law school and for graduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees—the Bachelor of Science and Bachelor of Arts in the College of Liberal Arts, and the Bachelor of Business Administration in the College of Business Administration.

The B.A. and B.B.A. have similar major requirements, but their college requirements differ. The B.B.A. program is designed to provide a background in the business fields of accounting, finance, marketing, business law, and management. The B.S. program is designed for the student seeking a less technical liberal arts background.

Bachelor of Arts

These are the requirements for the B.A. degree with a major in economics:

225-26 Elementary Probability and Statistics 3 s.h.

or

22M-7 Quantitative Methods I 4 s.h.

and

225-8 Quantitative Methods II 4 s.h.

Twenty semester hours of credit in 100-level economics courses, including 6E:103 Microeconomics and 6E:105 Macroeconomics.

Most 100-level courses in economics have as prerequisites either 6E:1 Principles of Economics and 6E:2 Principles of Economics, or senior standing; 6E:1 and 6E:2 satisfy the social science core requirement.

Credit gained in 6E:100 Price, Employment, and Production Theory cannot be counted toward the 20 semester hours of 100-level economics course credit required for the B.A. degree.

Bachelor of Science

The B.S. program in economics requires these courses and electives:

22M-25-26 Calculus I-II 8

225-120 Probability and Statistics or

6E:103 Statistical Methods in Economics 4

Twenty semester hours of 100-level economics courses, including 6E:103 Microeconomics, 6E:105 Macroeconomics, and 6E:184 Methods of Quantitative Economics.

Credit gained in 6E:100 Price, Employment, and Production Theory or 6E:184 Statistical methods in Economics cannot be counted toward the required 20 semester hours of 100-level course credit.

Minor

A student in the College of Liberal Arts may complete a minor in economics by earning at least 16 semester hours of credit in courses offered by the Department of Economics, including at least 12 hours in courses numbered 100 or above.

Students interested in a 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 interests. Honors students must complete four 100-level economics courses, including 6E:103 and 6E:105, before the senior year. They must also register for 6E:197 Senior Thesis in Economics for three hours of credit both semesters of the senior year, complete a senior thesis under direction of an economics faculty member of professorial 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.
Coursework for Nonmajors

Departmental courses 6E:1-2 Principles of Economics satisfies the College of Liberal Arts prerequisite core requirement, and provides an introduction to specialized topics of upper-division courses. Students with limited exposure to economics may examine the economics behind some current policy issues in 6E:7 Contemporary Economic Problems and Policy.

Coursework in economics can be related to majors in many other fields—for example, environmental studies majors might take 6E:1-3 Economic Growth and Environmental Decay and 6E:103 Microeconomics: political science majors could elect 6E:119 Economics of the Government Sector and 6E:111 Industrial Organization.

A number of students combining majors in economics and in fields with a strong computer science, ethology, 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 thesis option to meet the needs of students interested in research. A number of students combine majors in economics and in fields with a strong computer science, ethology, history, mathematics, political science, sociology, or statistics.

The M.A. degree program is designed to provide breadth in economic training without a focus on the completion of specialization. Students in the M.A. program usually complete it within 18 months.

Within the M.A. program, the department offers concentrations in economic development, 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. degree program is designed to provide students with rigorous training in microeconomic 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.

Special Seminar

Each year the department offers a seminar involving eminent economists from other universities and government, as well as presentations by faculty and student members of the department.

Courses

All courses offered in the Department of Economics are listed in the "College of Business Administration" section of the CATALOG.

Education

See "College of Education."

English

Department chair: Richard Lloyd-Jones


professors emeriti: Joseph F. Berek, Angelo Battistini, Paul Engle, John C. Earle, Alexander C. Hard, Donald E. Kahn, Sidney Mezrow, John C. McMillan, William J. Mott


associate professor emeritus: Charles T. Miller

assistant professors: Kenneth Campbell, Paul Clark, Kenneth J. Matthews, Lowell L. Flickr, John B. Harper, Carleton L. Playfair, Gladys W. Read, William W. Read

assistant professor emeriti: Sara S. Prince

Institute of International Relations

S.A.R. Institute, W.A., M.A., V.A., V.D.

Ph.D.

Studying English and American literature, a student learns to read a work of literature in relation to the culture of its origins and to interpret its meaning and value for present circumstances.

Study of the English language helps students examine the possibilities of spoken and written English both historically and analytically.

Knowing the theory and practicing the craft of writing helps students express their ideas in the public domain precisely and forcefully.

Majoring in English means pursuing these three aspects of the subject. Students who have taken English majors at The University of Iowa are now practicing law and medicine, working for advertising firms, newspapers, and book publishers, or for offices in state or federal government. Many others hold responsible positions in business and industry. Others are teaching in colleges as well as primary and secondary schools.

Undergraduate Programs

Bachelor of Arts

A Bachelor of Arts degree with a major in English requires 30 semester hours of credit courses offered in the Department of English, 9 of which should come from courses dealing with the literature prior to 1800 and at least 15 of which should be taken in residence at The University of Iowa.

In addition to their academic advisors, students work out programs of study designed to satisfy their current interests and fulfill their future plans.

Non-majors may begin with courses emphasizing close reading of poetry, fiction, and argument. Later they study particular literary genres and the literature and culture of selected historical periods.

English majors take courses in such diverse subdisciplines as folklore, literature and film, or print and book design. They may also study the history and structure of the English language, or they may do advanced work in either imaginative writing (poetry, fiction, and drama) or 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 fields as history, classical or modern foreign literatures, speech, and the fine arts. Students planning to teach in primary or secondary schools will add appropriate courses in education. Those seeking careers in other fields may elect courses in business, pre-law, or the sciences.

As soon as a student decides to undertake an English major, he or she should consult the director of undergraduate study in the English department office, who will assign them a faculty advisor. In the English office, too, they may obtain a pamphlet on Designing Your English Major, and other printed material explaining departmental programs, courses, and special events.

Minor
A minor in English requires 16 semester hours of coursework in Department of English courses. Twelve of these hours should be in advanced courses (301 and above). Courses in the literature core, a graduation requirement for the College of Liberal Arts, do not contribute toward the minor program in English.

Literature Semesters
Available to all University undergraduates, the two literature semesters presently offered are 890-83 English Literature Before 1800 and 894-87 American and Contemporary Literature. The latter covers American literature from its beginnings through the present, as well as British literature since 1800.

Each literature semester carries 12 semester hours of credit and involves as much reading as would be contained in four ordinary courses. Classes meet two hours a day, five days a week. Three professors cover all sessions, and the instruction is divided equally among them.

Since all work is discussed and compared within and across the conventional historical divisions, the students undergo an intensive discipline in practical criticism. They write a paper a week, practice oral reading and productions of scenes from plays, and often write parodies, imitations, and other exercises as a means of increasing their sensitivity to literary styles.

Honors
The English major with honors is designed to encourage talented students to explore a wide range of literary experience and to achieve a mastery of literary works. During the junior and senior years, an honors student takes a special honors seminar and engages in independent study supervised by an honors adviser. In his or her last semester before graduation, an honors student completes an honors paper, either critical or creative, and submits all honors examination on British and American literature. Honors study is planned in consultation with the chair of honors in English and members of the honors committee.

Creative Writing
Many undergraduates come to The University of Iowa because of the excellence of its creative writing program. With the consent of his or her adviser, any student may elect the undergraduate courses in this program. These are BW/23 Creative Writing, BW/151 Fiction Writing, and BW/160 Poetry Writing.

Admission to the undergraduate workshops in fiction and poetry (GW/45 Undergraduate Writers Workshop: Fiction and GW/46 Undergraduate Writers Workshop: Poetry) is only by permission of the instructor. Students who wish to take part in these workshops must submit samples of their poetry or fiction to the Writers Workshop no earlier than a week before registration, and no later than the last day of registration.

English and Education
The department offers a flexible undergraduate program for students planning to teach English in secondary schools. Students completing this program satisfy the requirements for a general major in English and for teaching certification.

Students who wish to be certified to teach English in Iowa secondary schools should select courses which fulfill the state guidelines for teachers of English in grades seven through twelve.

Literary study for students planning to teach English should emphasize a range of close reading experiences in different kinds of literature (literature of the ancient world, Shakespeare, British literature of the nineteenth and twentieth centuries, American literature, literature for adolescents, literature of American ethnic groups, literature by women, folk literature), as well as a variety of methods for exploring a literary text. Students planning courses which will help them in their first teaching experiences should remember that they will have to work with details of expression in English.

They will need advanced training in writing—fiction, 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 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 across 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 at a later time.
English majors seeking teacher certification must plan with their advisors appropriate education courses to be taken concurrently with courses in English. In addition, they must devote one semester of the senior year to professional training apart from any 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 who seek certification for 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, excluding freshman courses in rhetoric, speech, or writing.

The English minor certification program must include a course in each of these areas: advanced composition, Shakespeare, American literature, and British literature of the nineteenth or twentieth centuries. In addition to the 20 semester hours of English, the student is required to take 75:116 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 who teaches English should have considerably more training in the field.

Graduate Programs

Master of Arts

The basic requirements for the M.A. in English are:

Completion of a coherent curriculum, the plan of which is to be made in consultation with the student’s appointed departmental advisor;

Completion of at least 30 semester hours of graduate study, of which 24 must be earned in residence at this University;

Computation of one seminar with a letter grade of A or B, as part of the 30 hour requirement; and

Satisfactory performance on an 8-hour written final examination based on a list of literary texts, a copy of which may be obtained from the department’s graduate office.

These requirements clearly allow students a great deal of freedom in course selection. The M.A. degree in English encourages candidates to construct programs that are individually suited for their particular needs and interests. However, M.A. candidates who contemplate going on for a Ph.D. should request information pertinent to that degree so that they can efficiently prepare for meeting the Ph.D. requirements while working toward the masters degree.

Master of Arts with Emphasis in 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 freelance 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 hours must be earned in residence at The University of Iowa, including 8 hours of work in advanced composition with a grade of B or A. In addition to the 30 semester hours of coursework, students will be required to complete at least 3 and no more than 6 semester hours of credit for the thesis.

In consultation with an advisor, the student will design an approved program of courses. The plan of study may be highly individual, including courses from widely different areas or departments, but must be coherently organized around the student’s interests and objectives as a writer.

Finally, the student will submit to his or her committee a proposal for a thesis, which will be an extended piece of expository writing; there 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 a two-year college. 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 for the Ed.S.

The program of study includes 9 semester hours of electives, 12 of literature, 11 of advanced expository writing and/or linguistics, and 15 in professional courses taught by specialists in English and in education. Each student spends one semester intensifying 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 translations, poetry, fiction, or plays. The requirements are flexible, but usually include 48 semester hours of graduate credit, earned chiefly in the Writers Workshop, a book-length collection of poems or short stories, or a novel, a play, or a work of creative writing in some other appropriate genre, and satisfactory performance on an examination on modern literature in the form the student is employing.

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 literary genre. Student programs are individually structured and are designed to develop skills in source and target languages and cultures. The course also seeks to develop awareness of the tradition of translation
and the history of translation theory. The program normally requires 48 semester hours at graduate credit, including a minimum of 12 hours of Translation Workshop; a collection of translated poetry, fiction, or drama; and an examination in critical translation 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 doctoral program 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 stylictics, folklore, bibliography, pedagogy, comparative literature, and linguistics.

Requirements for the Ph.D. Include:

1. Formal admission to candidacy by a vote of the full faculty of the department.
2. Demonstration of a high level of competence in two foreign languages and their literatures, or mastery of a single foreign language and its literature.
3. A distributed coursework in specified historical areas, two seminars;
4. A pair-written, pair-presented comprehensive examination in three areas, two of which are usually historical periods of English and American literature;
5. A dissertation, which may be either a scholarly work or a piece of imaginative writing;

All doctoral candidates are required to gain teaching experience, preferably in the rhetoric and literature core programs of the College of Liberal Arts.

Interested students should write to the department's director of financial aid and doctoral studies 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 applicants for aid receive it. New students should expect to support themselves through the first year.

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 the Creative Writing Program; M.A. in Expository Writing applicants should submit a sample of exposition and a statement of purpose to the director of that program, and Ph.D. applicants should submit a representative sample of their writing—such as a course paper, seminar paper, or thesis chapter—to the department's associate director of graduate 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 became the first institution of higher education to accept creative dissertation for advanced degree programs.

Founded in 1936, the Writers Workshop was a pioneer in the field of creative writing; it numbers scores of distinguished poets and novelists among its alumni. The workshop provides opportunities for students at all levels to work with outstanding teacher-authors, and also brings numerous prominent authors to campus each year for lectures and readings.

The International Writing Program, founded in 1947, brings numbers of prominent foreign writers to campus each year.

The University of Iowa has also been a leader in the area of expository writing and rhetorical theory; it is one of the few academic institutions in the nation which offers a full range of graduate coursework in this area.

In 1979, The University of Iowa established the Institute on Writing, a project for the professional development of college and university directors of freshman writing programs. The Institute is a five-year project, jointly funded by the National Endowment for the Humanities and the University. The presence of the institute expands the resources available to students in the area of writing, and enables the department to bring distinguished instructors to campus to participate in regular course offerings in writing.

Special Facilities

The University Library is strong in all areas of English and American literature. It is especially noteworthy for its collection of American periodicals and its holdings of nineteenth- and twentieth-century works.

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 gain editorial experience by working with The Iowa Review, Philological Quarterly, and the Midwest Modernist Language Association. Visiting writers and lecturers are on the campus almost every week, and various conferences and out-of-town "festivals" complement the schedule of class work.
Courses

Individual descriptions for the English courses listed below are not included because the context and emphasis of many course vary considerably from one semester to another. Detailed course descriptions for all offerings in a specific semester are available in the English department office well in advance of the beginning of each semester.

For Undergraduates

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

- 10 Modern Fiction 3.0h.
- 20 Modern Poetry 3.0h.
- 30 Modern Drama
  Drama on 287.11.
- 31 Chaucer and Chaucerian Studies
  Drama on 287.11.
- 33 Shakespeare
  Drama on 287.11.
- 34 Introduction to Film Analysis
  Drama on 287.11.
- 311 The Renaissance in Current
  Literature 3.0h.

Introductory Close Reading of Texts

The following are limited-enrollment discussion courses in which a small number of texts are read carefully to illustrate representative problems in interpreting and evaluating literature.

- 320 Critical Approaches to Literary Works 3.0h.
- 321 Masterpieces of English Literature 3.0h.
- 322 Major British and American Plays 3.0h.
- 323 Major British and American Poets 3.0h.
- 324 Selected Plays
  Same on 287.11.
- 325 Selected Fictions
  Same on 287.11.
- 326 Selected Essays
  Same on 287.11.
- 327 American Literature Classics 3.0h.
- 328 Selected Works of the Middle Ages 3.0h.
- 329 Shakespeare's Comedies
  Same on 287.11.
- 330 Selected Works of the Eighteenth Century
  Same on 287.11.
- 331 Major Nineteenth-Century British Works 3.0h.
- 332 Selected Critic's Works Before 1800 3.0h.
- 333 Selected Early Modern Works 3.0h.
- 334 Selected Works of the Twentieth Century 3.0h.
- 335 Masterpieces of the Renaissance I 3.0h.
- 336 Masterpieces of the Renaissance II 3.0h.

Major Authors

The following are limited-enrollment discussion courses. Each author is represented by several major works. Combinations of authors are changed regularly. Per enrolment of the instructor, a student may register for one course number if authors have been changed.

- 371 Chaucer
  Same on 287.11.
- 372 Shakespeare
  Same on 287.11.
- 373 Selected English Authors 3.0h.
- 374 Selected American Authors 3.0h.
- 375 Selected Western Authors 3.0h.
- 376 Selected Authors 3.0h.

Literature Semesters

These are limited-enrollment, team-taught discussion courses emphasizing the reading of whole texts (see separate departmental announcements). The literature semester comprising 8:00-8:00 satisfies the major requirement for literature before 1800. Students should have taken at least one college-level literature course before registering for either of these literature semesters. Pre-registration is required.

- 800 English Literature Before 1800 3.0h.
- 801 English Literature Before 1800 3.0h.
- 802 English Literature Before 1800 3.0h.
- 803 English Literature Before 1800 3.0h.
- 804 American and Contemporary Literature 3.0h.
- 805 American and Contemporary Literature 3.0h.
- 806 American and Contemporary Literature 3.0h.
- 807 American and Contemporary Literature 3.0h.

For Undergraduate and Graduate Students

Lawrence and Culture

For undergraduate and beginning graduate students, these lecture courses are designed to present major works and authors within the context of political, social, cultural, and intellectual movements of their time. Students who have established backgrounds in history or related arts are especially welcome. Undergraduate majors in English are urged to include at least one course of this type in the latter half of their majors.

- 808 Introduction to Legal Problems 3.0h.
- 809 Literature and Culture of the Middle Ages 3.0h.
- 810 Literature and the Culture of the Renaissance 3.0h.
- 811 Literature and the Culture of Elizabethan England 3.0h.
- 812 Literature and the Culture of Shakespeare 3.0h.
- 813 Literature and the Culture of Eighteenth-Century England 3.0h.
- 814 Literature and the Culture of Nineteenth-Century England 3.0h.
- 815 Literature and Culture of Modern Culture 3.0h.
- 816 Literature and the Culture of Twentieth-Century America 3.0h.

- 807 American Criticism and Culture 1800 to Present 3.0h.
- 808 American Literature and Civilization 3.0h.
- 809 European Literature of the Nineteenth Century
  Same on 428.11 and 528.11.
- 810 Selected Authors 3.0h.
- 811 American Fiction, World 3.0h.
- 812 American American Fiction 3.0h.
- 813 American Indian Literature 3.0h.
- 814 American Regional Literature 3.0h.
- 815 Literature of Spain 3.0h.
- 816 Spanish Literature
  Same on 428.11.
- 817 Argentine Literature
  Same on 428.11.
- 818 Chilean Literature
  Same on 428.11.
- 819 Mexican Literature
  Same on 428.11.
- 820 Library Courses in Scandinavian Literature
  Same on 429.11 and 529.11.
- 821 Literature and Culture of America Before
  1840 Same on 429.11.
- 822 Literature and Culture of the Seventeenth Century 3.0h.
- 823 Literature and the Culture of the Eighteenth Century 3.0h.
- 824 American and American Culture
  Same on 428.11.
- 825 American and the Culture of the Twentieth Century
  Same on 428.11.
- 826 American and American Culture
  Same on 428.11.
- 827 American and American Culture
  Same on 428.11.
- 828 American and American Culture
  Same on 428.11.
- 829 American and American Culture
  Same on 428.11.
- 830 American and American Culture
  Same on 428.11.
- 831 American and American Culture
  Same on 428.11.
Comparative and European Literature

- Shakespeare's Later Plays
- Selected Authors

Literary Criticism

- History of Criticism: Early
- European Renaissance
- Age of Enlightenment
- Romanticism
- Realism
- European Poetry
- Modern European Poetry
- Developments in Literary Periods
- Movements in European Literature
- Literary Genres and Modes
- Patterns of Style and Literary Forms

- Seminars: These seminars represent the most advanced work in English and American literature and in related disciplines. The concentration of a given seminar may vary from semester to semester. Permission of the instructor is required for registration.

Special Period Studies

- Medieval Studies
- Renaissance Studies
- Mystical Studies
- Viceregal Studies
- American Studies
- Advanced Seminars in Black Culture
- Modern Studies
- Post-Period Studies
- Literatures and Philosophic Thought

Literary Criticism

- Modern Criticism and the Study of Library Periods
- Selected Backgrounds of Literary Periods
- Literary Genres and Modes
- Poetic Theory and Criticism
- Theory and Analysis of Literary Forms

Independent Study

- Advanced Studies in an Author
- Advanced Studies in a Literary Period
- Advanced Studies in a Literary Form
- Advanced Studies in a Literary Genre
- Advanced Studies in a Literary Mode
- Advanced Studies in a Literary Movement
- Advanced Studies in a Literary Theme
- Advanced Studies in Literary Criticism
- Advanced Studies in Rhetoric
- Advanced Studies in an Interdisciplinary Subject
- Special Project or Graduate Student Thesis

Linguistics and Language

- Elements of Linguistics
- Introduction to Linguistics
- Language Data Processing
- History of the English Language
- Semantics
- The Structure of English
- Modern English Grammar
- Language, Society, and Education
- Introduction to Advanced Studies of Modern English
- Linguistic Preliminaries
- Colloquialism
- Old Norse
- Modern English Language and Literature
- Advanced Studies in Linguistics
### 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP 400</td>
<td>Interior Reading Comprehension</td>
<td>1.0</td>
</tr>
<tr>
<td>IP 401</td>
<td>Special Reading</td>
<td>1.0</td>
</tr>
<tr>
<td>IP 410</td>
<td>Practical College Vocabulary</td>
<td>1.0</td>
</tr>
<tr>
<td>IP 410</td>
<td>Methods English</td>
<td>2.0</td>
</tr>
<tr>
<td>IP 412</td>
<td>Literacy for Adolescents</td>
<td>2.0</td>
</tr>
<tr>
<td>IP 415</td>
<td>Practice Teaching Composition</td>
<td>2.0</td>
</tr>
<tr>
<td>IP 416</td>
<td>Writing for Professional Education</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 418</td>
<td>Reading Literature</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 406</td>
<td>English in the Two-Year College</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 409</td>
<td>Seminar English in the Two-Year College</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 410</td>
<td>Teaching in a Reading Laboratory</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 415</td>
<td>Writing in a Writing Laboratory</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 428</td>
<td>B.S. Seminar English Education</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 429</td>
<td>B.S. Seminar English Education</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 448</td>
<td>Graduate Teaching Freshman Methods</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 450</td>
<td>Graduate Teaching of Freshman Composition</td>
<td>3.0</td>
</tr>
<tr>
<td>IP 410</td>
<td>Graduate Teaching of Literature</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Expository Writing
#### General Interest
These courses are designed to serve the general interests and needs of undergraduate students and graduate students in all areas of the University. They offer practice in various elements of composition and various kinds of informative, persuasive, and expository writing.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>EX 420</td>
<td>Expository Writing</td>
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</tr>
<tr>
<td>EX 430</td>
<td>Theories of Narrative</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 431</td>
<td>Theories of Scientific Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 432</td>
<td>Theories of Logical and Literary</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 433</td>
<td>Great and Last Life for Vocabulary</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 434</td>
<td>Personal English</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 440</td>
<td>Writing for Personal and Public Purposes</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 450</td>
<td>Advanced Expository Writing</td>
<td>3.0</td>
</tr>
</tbody>
</table>

#### Special Interests
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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX 451</td>
<td>Writing for the Sciences</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 452</td>
<td>Writing for Business and Industry</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 453</td>
<td>Edwardian Prose and Journalism Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 454</td>
<td>Progressive Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 455</td>
<td>Expository Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 456</td>
<td>Fine-Letters Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 457</td>
<td>Fine-Letters Workshop</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 458</td>
<td>Critical Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 459</td>
<td>Scholarly Writing Workshop</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Theory and Practice
These courses are designed to serve the interests and needs of advanced undergraduates 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX 460</td>
<td>Tertiary Writing and Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 461</td>
<td>The Art of the Essay</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 462</td>
<td>Approaches to the Teaching of High School Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 463</td>
<td>Expository Writing and Application</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 464</td>
<td>Expository Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 465</td>
<td>Expository Writing and Application</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 466</td>
<td>Expository Writing and Application</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 467</td>
<td>Expository Writing and Application</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 468</td>
<td>Expository Writing and Application</td>
<td>3.0</td>
</tr>
<tr>
<td>EX 469</td>
<td>Expository Writing and Application</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Creative 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 practice in various elements of forms and terms of creative writing.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR 420</td>
<td>Creative Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 430</td>
<td>History and Theory of Translation</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 431</td>
<td>Fiction Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 432</td>
<td>Poetry Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 433</td>
<td>Narrative Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 434</td>
<td>Folktale Writing</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### Professional Workshop
These courses are designed to serve special interests and needs of undergraduate and graduate students who have substantial background and experience in a specific area of creative writing. They are open only to students who have received permission of the instructor or who have been admitted to work in the Writers Workshop.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR 435</td>
<td>Graduate Writers Workshop: Poetry</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 436</td>
<td>Graduate Writers Workshop: Fiction</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 437</td>
<td>Fine-Letters Workshop</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 438</td>
<td>Expository Writing Workshop</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 439</td>
<td>Scholarly Writing Workshop</td>
<td>3.0</td>
</tr>
<tr>
<td>CR 440</td>
<td>Artistic Writing Workshop</td>
<td>3.0</td>
</tr>
</tbody>
</table>

### French and Italian
#### Department Chair
John T. Neutheug, Jr.

#### Degree Requirements
- B.A. (French or Italian), M.A. (Francis), Ph.D. (Frencht)

### Undergraduate Programs
The department's purpose is to introduce students to the cultures of France and Italy, provide an understanding of those countries' historical and contemporary importance, facilitate development of proficiency in the French or Italian language, and foster critical appreciation of French and Italian literature and civilization.
The department offers a variety of major programs in French and Italian, electives for nonmajors with prerequisite linguistic skills, and flexible majors to meet the formal language requirements of the College of Liberal Arts and to satisfy individual needs and interests.

* Students majoring in French or Italian may combine their studies with courses in education (see the "College of Education" section of the Catalog) to prepare for jobs in high school teaching. They may go on to graduate study in such areas as French comparative literature, or history, as preparation for college-level teaching, or, in combination with other skills and studies, a major in French or Italian may prepare the student for challenging career opportunities in the international areas of government, business, finance, travel, or communications, where the knowledge of a foreign language is essential.

**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 towards the French major.

**Literature Track**

Designed for students who are interested in French literature or in combining the study of French literature with a major in another area, such as English, comparative literature, cinema, or fine arts, the literature track requires a total of 35 semester hours of credit in French, including:
- 27-28 Second-Year Composition and Conversation 6 s.h.
- 9111-111 Third-Year Composition 6 s.h.
- 9126 French Conversation: Third Level 2 s.h.
- 9175 Advanced French Pronunciation 2 s.h.
- 26-French Pronunciation 2 s.h.

A minimum of four 100-level courses in literature (at least one of which must be above the 150 level), plus a fifth 100-level course is a choice of literature, advanced language, or civilization, totaling 15 semester hours.

**Civilization Track**

Designed for students interested in French history, politics, and culture, and recommended for students wishing to combine studies in French with a major in another area such as history, political science, pre-law, or journalism, the civilization track requires 34-35 semester hours of credit in French, including:
- 27-28 Second-Year Composition and Conversation 8 s.h.
- 9111 Third-Year Composition 3 s.h.
- 9126 Second-Year Composition and Conversation 8 s.h.
- 9136 French Conversation: Fourth Level 2 s.h.

One from this group:
- 9112 Third-Year Composition 3 s.h.
- 9126 French Conversation: Third Level 2 s.h.
- 9136 French Conversation: Fourth Level 2 s.h.

A minimum of four 100-level courses in civilization and three 100-level courses in literature totaling 11 semester hours and including at least one course above the 150 level.

**Teaching Track**

- The teaching track requires 35 semester hours of credit in French, including:
  - 27-28 Second-Year Composition and Conversation 8 s.h.
  - 9111-111 Third-Year Composition 6 s.h.
  - 9175 Advanced French Pronunciation 2 s.h.
  - 25-26 French Conversation: Third Level 2 s.h.
  - 9136 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 one course above the 150 level.

- The student who plans to acquire a secondary teaching certificate must also complete the College of Education requirements for teacher certification.

**Applied French Track**

Designed for students with an interest in areas such as international business, commerce, or law, and others who applied French would be an asset, the applied French program requires 36 semester hours in French, including:
- 27-28 Second-Year Composition and Conversation 8 s.h.
- 9111 Third-Year Composition 3 s.h.
- 9115 Business French 3 s.h.
- 9126 French Conversation: Third Level 2 s.h.
- 9136 French Conversation: Fourth Level 2 s.h.
- 9155 Commercial and Technical Translation 3 s.h.
- 9147 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 textual analysis, another language, economics, political science, and/or business administration.

**Bachelor of Arts in Italian**

Requirements for the major in Italian include:
- 111-111 Intermediate Italian 8 s.h.
- 111-111 Advanced Composition and Conversation 8 s.h.
- 110-105 Introduction to Italian Literature 6 s.h.
- 111-111 Dante and His Times 3 s.h.
- 115-115 The Renaissance 3 s.h.
- 118-118 Literature of the Nineteenth Century 3 s.h.
- 118-118 Literature of the Twentieth Century 3 s.h.
- Total 27 s.h.

**Honors**

The department participates in the College of Liberal Arts Honors Program. For an honors degree in French, the student must complete:
- 180 Honors Readings 3 s.h.
- 180 Honors Seminar 3 s.h.

An additional course numbered above 150 in French literature, language, or civilization 3 s.h.
Graduate Programs

Master of Arts in French without Thesis

The candidate must pass a minimum of 30 semester hours of graduate credit in a written and oral examination. The program must include 9:171 Advanced French Pronunciation, 9:209 Advanced Grammar and Lexicology, 9:210 Comparative Stylistics, and at least four graduate-level (200 and above) literature courses. With the permission of the departmental chair, the candidate may take up to 6 of the required 30 hours outside the department.

Master of Arts in French with Thesis

The requirements for the thesis program are the same as for the M.A. without thesis, except that in the thesis program the candidate may earn up to six semester hours' credit for his or her thesis work. The candidate must defend the thesis at the time of the comprehensive examination.

Master of Arts in French Education

The program is intended primarily for prospective secondary school and junior college teachers. Requirements include a total of 38 semester hours of graduate credit. Of the total, 8 must be in education or related fields, and at least 9 must be in graduate (200 level) courses in French literature.

The following courses are also suggested:
- 9:153 Stylistics: Analysis and Application
- 9:154 Textual Analysis
- 9:209 Advanced Grammar and Lexicology
- 9:210 Comparative Stylistics
- 9:113-114 French Civilization
- 9:150 Methods: Foreign Language
- 9:151 Language Laboratory Equipment Procedures
- 9:160 Contemporary France
- 9:175 Advanced French Pronunciation

Candidates must pass a final written and oral examination.

Doctor of Philosophy

Requirements for the Ph.D. degree in French include completion of at least three years of graduate study, of which 9 at least must be spent in residence at the University. The passing of a comprehensive examination and the successful oral defense of a dissertation are required. Specific requirements include 9:251 Introduction to Old French Grammar, and four semesters of college-level or equivalent proficiency in a foreign language other than French.

The candidate must also complete three graduate courses for a minimum total of 9 semester hours of credit in a related field, such as another literature, or history, philosophy, etc. and must earn at least 6 semester hours of credit in 9:277 Thesis. Students working toward the doctorate are required to spend at least one year teaching as graduate assistant in the department.

Graduate Admission

To be considered for admission to an M.A. program in French, the applicant must have completed the equivalent of the University of Iowa's undergraduate major in French. Students may make up deficiencies in previous training by taking appropriate courses.

The M.A. in French is prerequisite to admission to the Ph.D. program in French. Successful completion of the M.A. program, however, does not necessarily qualify a student for doctoral studies.

For students earning the M.A. at The University of Iowa, the M.A. comprehensive examination committee will make a recommendation concerning admission to the Ph.D. program. Students applying for doctoral candidacy with the M.A. earned at another institution are, when admitted, placed on conditional status, and this status is reviewed after one semester of residence.
French Courses

Primarily for Undergraduates

A detailed description of course offerings can be found in the current semester's catalog. All courses are listed by department, and the description includes the course number, title, and instructor. The catalog is available online or at the department's office.

For Graduates and Majors

200 Reports Seminar Forum in French

300 Introduction to French Literature

For Undergraduates and Majors

400 Reports Seminar Forum in French

500 Introduction to French Literature

For Majors

600 Introduction to French Literature

通信: 评论/回复
For Undergraduates and Graduates

16.1 Elementary Italian 3 h. 3 h.
16.3 Elementary Italian 4 h. 4 h.
16.7 Intermediate Italian 2 h. 2 h.
16.11 Intermediate Italian 2 h. 2 h.
16.13 Conversational Italian 2 h. 2 h.
16.14 Conversational Italian 7 2 h.
16.4 Special Work 2 h.

Italian Courses

Primarily for Undergraduates

16.1 Elementary Italian 3 h.
16.3 Elementary Italian 4 h.
16.7 Intermediate Italian 2 h.
16.11 Intermediate Italian 2 h.
16.13 Conversational Italian 2 h.
16.14 Conversational Italian 7 2 h.
16.4 Special Work 2 h.

For Undergraduates and Graduates

16.1 Literature of the Twentieth Century 3 h.
16.3 Literature of the Twentieth Century 4 h.
16.7 Intermediate Italian 2 h.
16.11 Intermediate Italian 2 h.
16.13 Conversational Italian 2 h.
16.14 Conversational Italian 7 2 h.
16.4 Special Work 2 h.

Italian Courses

Primarily for Undergraduates

16.1 Elementary Italian 3 h.
16.3 Elementary Italian 4 h.
16.7 Intermediate Italian 2 h.
16.11 Intermediate Italian 2 h.
16.13 Conversational Italian 2 h.
16.14 Conversational Italian 7 2 h.
16.4 Special Work 2 h.
General Science

Coordinator: Robert S. Yager
Degree: B.A. or B.S.

The program in general science is designed for preprofessional students who need credits in several science disciplines, and for students interested in a variety of science disciplines. The program provides suitable preparation for secondary school teaching, health-related professions including medicine, dentistry, medical technology, optometry, physical therapy, and similar areas; and certain specialized graduate areas.

The major requirement for the Bachelor of Arts degree in general science is 44 semester hours of credit in any three College of Liberal Arts science- mathematics fields (biochemistry, botany, chemistry, mathematical sciences, geology, microbiology, physics-astronomy, zoology).

For the Bachelor of Science degree, the major requirement is 48 semester hours in any of the three science-mathematics areas.

For either degree, the major coursework must include 20 semester hours in one of the science-mathematics areas.

A student majoring in general science must earn at least 10 semester hours of grade C credit in science courses taken at The University of Iowa.

No credit earned in a designated science core course or in the CLEP Natural Science General Examination may be applied toward the credit requirement for a general science major.

A student who is admitted to The University of Iowa and College of Dentistry or College of Medicine or to a University of Iowa professional program in medical technology, nuclear medical technology, or physical therapy before completing requirements for the bachelor’s degree, may apply up to 30 semester hours of credit earned in the first year of professional training toward the 124-hour requirement for a bachelor’s degree with a major in general science, including a total of 8 semester hours of science credit toward the major requirement and, of these, 4 semester hours of the 20-hour concentration requirement.

To be eligible to receive a Bachelor of Arts or Bachelor of Science degree from The University of Iowa, a transfer student in any of the joint programs in general science must earn at least the last 30 semester hours of credit for the bachelor’s degree in The University of Iowa College of Liberal Arts.

No credit earned in a science course in another college of the University may be applied toward the major credit requirements in general science unless the department of Biochemistry, Botany, Chemistry, Geology, Physics and Astronomy, Microbiology, or Zoology determines in writing that the course is equivalent to one offered by that department.

A student in a general science teaching program may earn a Bachelor of Arts or Bachelor of Science degree by completing one of the approved courses listed under “Science Education” in this section of the Catalog. Each course totals 15 semester hours.

Students who want to teach in secondary schools must also satisfy certification requirements, which include a 20-semester hour sequence in education (see “Secondary Education” in the “College of Education” section of the Catalog).

Students majoring in general science are urged to take at least 4 courses in the science-mathematics area and basic applied mathematics to prepare them for graduate study and quantitative research.

All general science students who are not in either the science education program or one of the health-related programs must complete one of the following mathematics courses, or an equivalent course, or a higher-level college mathematics course:

22S:1 Calculus I for the Biological Sciences
3 s.h.
22C:2 Elementary Functions
3 s.h.
Any 22C course except 22C:1

Students majoring in general science are expected to meet the College of Liberal Arts language requirement with German, French, or Russian, unless the student’s academic advisor gives written approval of another language.

Completion of a minor in general science requires at least 20 semester hours of credit in any three of the science-mathematics areas listed for this major (above); of these, at least 12 hours must be in 100-level courses.

This preceding description pertains only to The University of Iowa College of Liberal Arts requirements for a bachelor’s degree with a major in general science, and no inference should be drawn from it concerning the specific requirements of any professional training program.

Genetics

Program chair: J. Dawes Moeller
Faculty: professors Roger Cathey (Biochemistry), Thomas Downey (Biochemistry), Irving Crawford (Microbiology), Joseph Freuden (Zoology), Cary Growth (Zoology), Joseph Haugen (Zoology), Victor Vossos (Pediatrics), John Wensinger (Zoology), Roger Allison (Zoology), David Weilacher (Zoology), Edward Wilson (Psychology), George Wolter (Psychology), Karl Zalenski (Psychology), Mary Zolnik (Zoology), Marylou Zolnik (Zoology), Thomas Zolnik (Zoology).

Professors: Terence Ingraham (Biology), Thomas Moore (Zoology), John Watson (Zoology), Mary Weilacher (Microbiology), James Hamel (Microbiology), Carol Hamel (Zoology), David A. Jack (Zoology), James Shearer (General Medicine), David Walker (Microbiology), Warren Wang (Medicine)

Instructors: Terence Ingraham (Biochemistry), Kathleen Butler (Preventive Medicine), Donald Crouch (Bacteriology), Frank Adkins (Optochemistry), Dennis Putt (Pediatrics), William Pfeifer (Pediatrics), George Bruher (Microbiology), Anthony Vask (Biochemistry), Hon- Fan Ng (Zoology)

Degree offered: Ph.D.

The interdepartmental Ph.D. program in genetics is designed to promote collaborative investigations and interdisciplinary research among the students and faculty participants affiliated with different departments.

Students enrolling in the program are encouraged to obtain a broad background in genetics, ranging from molecular to population genetics. Within this context, however, course requirements are flexible enough to permit students to tailor their formal coursework to fit their individual needs.

All students enrolled in the program are required to take 30.5 credits, of which 90:178 Advanced Genetics, and 22:125 Genetics Seminar. In addition, they are required to earn at least three semester hours of credit in molecular and
molecular genetics, cell and developmental genetics, and quantitative and population genetics.

Even more important than formal coursework is the opportunity to do meaningful research. Students are encouraged to begin their own research as quickly as possible. Research interests of the participating faculty range from bacteriology to human medical genetics. In each area of genetics there is a group of faculty members with closely related interests. The University is also strong in several related disciplines, including microbial physiology, embryology, virology, protein biochemistry, and developmental, cell, and population biology, all of which contribute significantly to the overall training program.

In addition to completing research and coursework, students must also pass a comprehensive examination, which they usually should take within the first two years in the program.

Admission

The prospective doctoral student in genetics should have a strong undergraduate background in science, including courses in general genetics, organic chemistry, inorganic physics, and mathematics, and a strong commitment to research and teaching in genetics. A student with deficiencies in a particular area can make them up during the first year of graduate study. Admission to the program is based on assessment of the applicant's undergraduate academic record, performance on the Graduate Record Examination (GRE) verbal, quantitative, and analytic aptitude tests, and letters of recommendation. Invitations for admission are not rigid. Although almost all students currently working toward the Ph.D. in genetics at The University of Iowa have undergraduate grade-point averages greater than 3.2 and GRE scores in 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 admission applications any time, but should receive them by February 15 to insure the applicant's consideration for entrance the following academic year.

Financial Aid

The most highly qualified applicants will be supported as fellowships and graduate assistantships. Traineeships include stipends of $5,040 for 12 months, complete tuition scholarships, and additional support for travel to scientific meetings. Traineeships may be supplemented by occasional teaching or research; trainees are encouraged to do some teaching as part of their development as scientists and teachers.

Students may also be supported by half-time teaching or research assistantships, with stipends in excess of $5,000 per year. Students receiving assistantships may also apply for full or partial tuition scholarships.

Medical Scientific 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 Scientific Training Program in the College of Medicine.

Departmental Ph.D. Programs

The departments of Biochemistry, Botany, Microbiology, and Zoology offer degree 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 are genetics courses available to graduate students.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>50:175</td>
<td>Human Genetics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>61:170</td>
<td>Microbial Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>61:173</td>
<td>Medical Genetics Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>57:952</td>
<td>Population and Evolutionary Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:153</td>
<td>Behavioral Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:155</td>
<td>Quantitative Genetics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:171</td>
<td>Eugenics Molecular Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>37:172</td>
<td>Topics in Molecular Genetics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:175</td>
<td>Topics in Evolutionary Genetics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>37:178</td>
<td>Topics in Evolutionary Molecular Biology</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>37:178</td>
<td>Advanced Genetics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:260</td>
<td>Developmental Genetics</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>37:263</td>
<td>Seminar in Behavioral Genetics</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

Geography

Department chair: James B. Lindberg

Faculty: professors: John W. Fuller, James B. Lindberg, Michael L. McInroy, David R. Reznikoff, David M. Roemer

Research assistant professors: Travis T. Blakeslee, Paul R. Kuhajda

Research assistants: Nancy A. Kurose, Laura M. Miller, Karen S. Nelson

Modern geography is concerned mainly with the spatial aspects of human and physical geography and with the relationship of man to his environment. University elect course in geography soon find that the insights and methods of inquiry they develop are applicable to the solution of many of the complex problems confronting modern societies, such as urban and rural growth, pollution, transportation problems, and the growth and development of large cities, distribution and consumption of natural resources, and the improvement of living standards and quality of life.

Studies in geography provide students with concepts and methods for organizing such spatial units as urban areas, market regions, school districts, and health service areas. Thus, today's geography contributes to the decision-making processes involved in
determining how individuals or groups of individuals can improve the quality of life in this complex age.

Career opportunities for majors in geography exist in various branches of government and in business. There is a demand for persons capable of dealing with resource management, economic development, market area analysis, and other problems related to the distribution and spatial interaction of physical, economic, social, and political phenomena in the world as a whole or in major parts of it.

Courses in geography are commonly required of students preparing in any teaching profession at the elementary and secondary school levels, of students who want to work in urban and regional planning, and as a background for many related professions, including law, health care, environmental or transportation engineering, and business administration.

Undergraduate Program

The geography faculty has developed an undergraduate instructional program which provides educational opportunities for a variety of students: for the nonmajor interested in one or more elective courses as they relate to a liberal education; for students interested in electing a cluster of courses in conjunction with another discipline or for the B.O.S. degree; and for students interested in acquiring a major in geography. The department also joins in significant interdepartmental programs involving global, urban, and environmental components.

Courses for the Nonmajor

Students in the College of Liberal Arts or other schools and colleges of the University may find geography courses meaningful to their own program of study. The beginning-level courses 44:1 Introduction to Human Geography, 44:2 Natural Environment and Man, 44:11 Introduction to Social Geography, 44:19 Natural-Environmental Issues, and 44:30 Introduction to Economic Geography are available for core course credit in social sciences, and serve as part of a liberal education.

Other courses may also be attractive as individual electives. These include 44:15 Introduction to Political Geography, 44:33 Transportation in the U.S.A.: Issues and Problems, 44:35 World Cities, 44:115 Locational Conflict, 44:124 Introduction to the Global Environment, 44:182 The Third World, 44:191 Energy in Contemporary Society. Students in several related disciplines and in the Bachelor of General Studies program may take courses leading perhaps to a minor in geography. The geography courses listed below under the different programs for the major in geography will serve as a guide to course selection. Additional information about a minor in geography is available in the department office.

Alternative 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 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.

All geography majors must complete a minimum of 26 semester hours of geography coursework, at least 15 of which must be at the 300 level. Many students will find that they will need more than the minimum requirements for mastery of a specific subfield.

All majors must complete the course 228:127 Applied Statistical Methods and Computations, or its equivalent as approved by the department, 44:110 Spatial Organization, and 44:150 Undergraduate Seminar for Geography Majors.

Bachelor of Science students must complete a mathematics requirement consisting of:

22M:10-11 Fundamentals of College Mathematics I and II or
12M:25 Calculus I or
An appropriate mathematics course approved by the advisor.

They must also complete a computer science requirement consisting of:

22C:7 Introduction to Computing with FORTRAN or
22C:16 Introduction to Programming with PL/I.

Environmental Studies

The undergraduate program in environmental studies is designed for students with career expectations or personal interests in resource management or environmental protection, or who have interests in physical geography per se. The program provides a knowledge of physical processes in landform development, atmospheric conditions, soil development, and aquatic communities. It stresses the interpersonal aspects among those processes and gives the student knowledge necessary to discuss the impact of human activities on physical systems. Training in field observation, quantitative analysis, computer methods, and cartographic representation are included in this concentration.

Required courses are:

22M:10-11 Fundamentals of College Mathematics I and II or
22M:20 Calculus I or
22C:127 Applied Statistical Methods and Computations or
22C:7 Introduction to Computing with FORTRAN or
22C:16 Introduction to Programming with PL/I.

44:110 Spatial Organization 44:150 Undergraduate Seminar for Geography Majors

Students concentrating in environmental studies are advised to select substantive courses (at least 21 semester hours) from among the following:

44:1 Introduction to Human Geography 44:2 Natural Environment and Man...
Graduate Program

The goals of the department at the graduate level are to prepare students to carry on creative and productive research in geography, to encourage the use of theory, modeling, and formal verification methods; to prepare students for positions in research, teaching, or some area of applied geography; and to help students develop their abilities to apply knowledge of facts, theories, and methodology to specific societal programs. The achievement of these goals is demonstrated in large measure by the demand for University of Iowa graduates in its 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 (44:306 Teaching College Geography) for those interested in academic careers. Opportunities are provided for all graduate students to gain practical teaching experience through service as departmental teaching assistants or through other supervised teaching duties.

Master of Arts

The department offers an M.A. program that emphasizes the acquisition of problem-solving skills. Within an overall analytical framework, students develop a broad area of competence that can be tailored to meet the contemporary demands of business, government, or the teaching profession. Recent graduates have obtained positions in health planning, community planning, transportation, and market research. The M.A. degree is also frequently taken by those whose ultimate goal is the Ph.D. degree.

In consultation with their advisors, students develop a broad area of competence and, in consultation with the faculty, develop a program of study emphasizing three dimensions: the subject matter of their area and the intellectual elements providing 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 18 semester hours must be 200-
level courses or above. Specific
requirements for the degree are:
At least 4 semester hours chosen from
among the mini-courses 44:201-202
Geographical Analysis I-II;
Satiation of the department's B.S.
degree requirements in mathematics,
statistics, and computer programming
or its equivalent (see above):
44:208 Quantitative Analysis I
and
An additional 12 semester hours in
geography.
Additional courses in geography or
related fields complete the student's
program.
Students who enter with sufficient
background are frequently able to
complete the program in one full year.
The M.A. degree is available with or
without thesis. A maximum of 6
semester hours of credit may be earned
for thesis work.
Students must pass a written and/or
oral final examination.

Doctor of Philosophy
Students whose objective is the Ph.D.
degree in geography are required to
complete 5 1/2 semester hours of 44:201-
202 Geographical Analysis I-II and
44:208-209 Quantitative Analysis I-II.
The eight mini-courses comprising
44:201-202 should be taken within the
first two years in residence, and must
include mini-course I offered by at least
dis different faculty members.
The courses 44:208-209 Quantitative
Analysis I-II should be taken during
the first year in residence. Students may
meet these requirements with a
satisfactory performance in written
examinations during the first week of
the first semester for which they register.
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 44:385 (a research
Seminar). Staff each semester while they
are in residence. One semester hour of
credit will be awarded each semester on
a satisfactory/un satisfactory basis for this
course.

The remainder of the Ph.D. program
includes appropriate graduate courses,
seminars, and research in geography
chosen by students to reflect their areas
of interest; courses in discipline closely
related to the student's objectives and
interests; and courses which satisfy the
unit requirements.
No later than the fourth semester in
residence, doctoral students should
defend a field of specialization within
their general areas of interest and
secure a faculty adviser to direct their
programs of study.
Preferably during the second year in
residence, and not later than the fifth
semester, doctoral students who have
been admitted to the graduate program
without advanced credit must submit 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 or more, or the
equivalent, must meet this requirement
not later than the third semester in
residence. The faculty will pass upon
the merits of the research thesis
previously demonstrated. Students become
Ph.D. candidates when their qualifying
papers have been completed.
Research tool requirements for Ph.D.
candidates are the courses 44:209
Qualitative Analysis I and another
appropriate course, as approved by the
faculty at the time the student declares
his or her specific area of specialization.
All doctoral candidates are expected to
have supervised experience as
classroom instructors and research
assistants before being awarded the
Ph.D. degree.
Graduate Admission
In addition to the general 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 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 on 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 averages, will be considered
according to their respective academic
standing in their respective institutions.

Financial Assistance
A number of graduate appointments as
teaching or research assistants are
available. Awards are based on merit
and a student must ordinarily have
achieved a combined score of 1100 in the
Graduate Record Examination 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.

Special Facilities
The department possesses a unique
complete graphics hardware system in
the MLAC POS-4 mini-computer that
supports a GRAP PEN GP-3 sonic
digitizer. The POS-4 is a 24K system
with a CRT for line editing and an
accompanying software support
package. DIGIT SERIES, developed
locally that allows (or a broad range of
computer graphics applications. This
system is linked to one of the four HP
2000 systems in the Recre Computing
Center. Each HP 2000 supports 32
terminals, including a second terminal in
the department, and is linked with the
main computer—an IBM 370/168.
Future interactive capabilities at The
University of Iowa will center on four
PITNEY BID 750 systems each supporting 48
terminals and all linked to the IBM
370/168. Complementing these
hardware systems are an increasing
number of microcomputer software
packages that will dramatically improve
interactive computing capabilities.
The Map Library contains more than
75,000 maps, 4 total of 2,050 atlases
has the customary
subfields—mineralogy, petrology, stratigraphy, structural geology, paleontology, sedimentology, economic geology, geomorphology, environmental geology—and also includes applied geophysics, geochemistry, and paleontology.

Career opportunities are available to professional geologists in industry (especially as related to the search for petroleum and mineral, teaching, urban planning, state and federal geological surveys, and government, resource, and research organizations. The master’s degree is required by most hiring agencies as the working degree in geology. However, an undergraduate degree is fully satisfactory in certain teaching, federal, and industrial situations.

Many of The University of Iowa’s geology graduates find employment with the petroleum industry in exploration geology and geophysics. Others continue in graduate school or take jobs with government or conservation agencies. Some intend to enter law, business, or other fields such as urban planning, environmental studies, engineering, archeology, science education, or oceanography as advanced areas. Geology is suited to all these.

The program stresses the basic aspects of geology more than the engineering or agricultural phases of the discipline. The department specializes in relating scientific thought to the study of the earth. Its resources include a major paleontology facility (invertebrate, vertebrate, palynology), a terminal link to the University computing center, the Iowa Geological Survey (located in the same building as the department), and research equipment for fields such as mineralogy, petrology (igneous, sedimentary, and economic), remote sensing, and exploration geophysics.

Geology majors receive at least an academic year’s work in allied scientific areas—physics, chemistry, biology, and mathematics—in addition to a course in each major area of geology.

Each year more than 1,000 students enroll in 1123 Earth History and Resources and 1134 Man and His Physical Environment, a team-taught, laboratory-lecture course designed to fulfill the College of Liberal Arts requirement for natural science core studies. Other options 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 as preparation for graduate study and for employment in industry. Required courses in this program:

10:1 Introduction to Geology 4 s.h.
10:2 Evolution of the Earth 4 s.h.
10:21 Mineralogy 4 s.h.
10:22 Elementary Petrology 4 s.h.
12:113 Summer Field Course 6 s.h.
12:121 Principles of Paleontology 3 s.h.
12:121 Structural Geology I 4 s.h.
12:122 Structural Geology II 3 s.h.
Two elective geology courses 6 s.h.
Total 36 s.h.

(Note: The student may substitute 1123 Earth History and Resources and/or 1124 Man and His Physical Environment for 12:25 Introduction to Geology, but 12:5 is preferred.)

The geology major requires at least 10 semester hours of college mathematics, including a minimum of one semester of 22:925 Calculus I or 22M:35 Engineering Calculus I. Computer science or statistics courses may be counted toward the ten-hour requirement. Additional mathematics (e.g., 12M:26 Calculus II and 22M:28 Calculus III, or 22M:26-37 Engineering Calculus II-III) is strongly recommended.

Eight semester hours of physics, 8 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 in the B.S. program, for students who are not planning to become professional geologists. With appropriate coursework 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.
11:23 and/or 11:24 may substitute for 12:5
12:6 Evolution of the Earth 4 s.h.
12:21 Mineralogy 4 s.h.
12:22 Elementary Petrology 4 s.h.
12:121 Principles of Paleontology 3 s.h.
12:116 Field Trip (two sections) 4 s.h.
Geology electives 12 s.h.
Total 35 s.h.

(Note: The student may substitute 1123 Earth History and Resources and/or 1124 Man and His Physical Environment for 12:25 Introduction to Geology, but 12:5 is preferred.)

The B.A. in geology requires at least 10 semester hours of college 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 apply to be a graduate student with a current research project, or initiate a small-scale project involving a combination of field, laboratory, and library investigation. Independent study is encouraged. Undergraduate classes 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 12:107 Geologic Orientation.

All graduate students in geology must perform teaching, research, or related appropriate service as part of the degree program.

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 provide a 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 coursework, and for satisfactory development of research plans as outlined in a thesis proposal which is submitted for departmental approval.

The degree requires at least 15 semester hours of credit in graduate level coursework, 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. Coursework taken to satisfy these requirements does not count toward the 30 semester-hour requirements for the degree.

To qualify for admission to the final master's examination, the candidate must have at least a 3.0 grade-point average on those graduate courses which are being offered toward the 30 semester-hour minimum requirement for the degree. Additionally, the grade-point average on all graduate geology courses is to be at least 3.0. Not more than 6 semester hours of thesis and research may be counted toward the 30 semester-hour minimum required for the degree program.

Master of Science with Thesis
Students are encouraged to select thesis topics involving a variety of geological subdisciplines and scientific skills. Research topics might include field work or mapping, laboratory experiments, analytical work, or some combination.

Master of Science without Thesis
The department encourages few students to pursue the M.S. without thesis, which requires that the applicant have approximately three months' experience working under supervision of a professional geologist, or equivalent experience in some phase of geologic activity.

If possible, the student should receive prior faculty members 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 36 semester hours of graduate coursework, of which at least 6 hours must be earned in other departments of the University.

The faculty may also require the student to submit a formal scientific report dealing with an appropriate subject or project. Credit may be granted for the report.

The final examination covers coursework 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 coursework in earth science.

Doctor of Philosophy
The Ph.D. degree in geology requires at least 72 semester hours of graduate coursework, including at least two full time semesters in residence beyond the first 24 semester hours of graduate study.

Departmental language and tool requirements for the Ph.D. degree may be met either by achieving competence in two languages or in one language and one tool, or by achieving proficiency in one language at level II. 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, physics, and zoology are not regarded as satisfying tool requirements, although they may provide indispensable background for the various areas of geological specialization.

Coursework 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 coursework, exclusive of credits for dissertation research and beyond coursework applied toward the M.S. degree.

The comprehensive examination covers, in depth, all subdivisions of one major field and one subdivision in each of three other major fields. It is also assumed 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 Geophysics
- Mineral Economics
- Petrology
- Economic Geology
- Detrital Deposition
- Mineral Geology
- Crystallography
- Detrital Metamorphic Geology
- Crystal Chemistry and Mineral Chemistry

Igneous and Metamorphic Petrology
Igneous Petrology
Metamorphic Petrology
Aqueous Geochemistry and Thermodynamics
Structural Geology
Geoelectronics
Structural Analysis
Remote Sensing
Geophysics
Exploration Geophysics
Solid-Earth Geophysics
Rock Properties
Stratigraphy
Physical Stratigraphy
Biostratigraphy
Depositional Environments
Sedimentary Petrology
Sedimentation
Sandstone and Carbonate Petrology
- Physical Stratigraphy
Paleoecology Studies
Palaentocene Geology
Vertebrate Paleontology
Quaternary Paleoecology
Paleontology
Palaeobotany
Palaeoecology
Biostratigraphy
Geomorphology
General Geomorphology
Glacial and Pleistocene
Remote Sensing
Environmental Geology
Hydrogeology
Remote Sensing
Engineering Geology
Other Minor Subjects
Botany
Zoology
Chemistry
Physics
Materials Engineering
Geography
Hydraulics
Archeology-Antropology
Science Education

Facilities

Resources and equipment available for research in the Department of Geology include: mineralogy/petrology lab (X-ray diffractometers, powder cameras, wet chemistry lab, A.A. spectrophotometer, microscope); sedimentology lab (thin-section lab, cathodoluminescope); paleontology facility (invertebrate, vertebrate, paleontological; including a major repository); photographic lab; geophysics (gravity meter, field and rock magnetometers, susceptibility meter, seismograph, high-pressure apparatus); Iowa Geological Survey (located in same building as the department, with subsurface core repository and remote sensing lab); network of microearthquake stations and seismographs; in-house terminal for University's computer center (IBM 370, Prime 700, HP3000 computers); trailer-mounted soil probe; scanning electron microscope; microscope; geology library with 30,000 volumes/journals and 65,000 maps.

Cooperative Activities

The department has joint professorships with the Iowa Geological Survey and the Department of Botany, and geology students sometimes work on projects for the Survey.

The departments of Geology, Geophysics, Anthropology, Chemistry, Botany, and Zoology cooperate in sharing services, expertise, joint instruction, and equipment.

Field Trips

Field trips are integral parts of several courses in geology. Weekend general-interest events are frequent in the Iowa City region, the geology is characterized by a layer of glacial drift on a largely Paleozoic sedimentary section a few hundred meters thick, overlying a Precambrian crystalline basement. Marine and terrigenous fossiliferous assemblages, extensive reefs, and unique geologic sites are available within a few hours' drive. All four Pleistocene glaciations are represented in Iowa and
each offers distinctive landforms and fossil assemblages.

Spring recess provides 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 Ozarka, Advanced classes visit Colorado, Ontario, Kansas, Oklahoma, and California.

Courses

Primarily for Undergraduates

12.1.1 Lecture in Earth, History and Resources 2 h. a. h. Ancient and modern environments on land and in the sea, and the processes by which these environments are modified and changed by the forces of present and past geologic activities. Not open to students who have had 11.1, 11.2, 11.3, 11.4, or 11.5.

12.1.2 Lecture in Man and His Physical Environment 2 h. a. h. Continuation of 12.1. Not open to students who have had 11.4, 12.4, or 12.5.

12.3 Principles of Physical Geography 2 h. a. h. Introduction to concepts concerning processes that have generated and are shaping our physical environment: composition and deformity of the earth's surface; climate, oceanic circulation, and the cycles of water. Not open to any student who has had previous course work in physical geography or earth science.

12.4 Principles of Historical Geography 2 h. a. h. Investigation of the processes and procedures which have generated natural features of the earth as known in the past. Historical geology, paleontology, and petrology of the earth's surface. Not open to any student who has had previous course work in physical geography or earth science.

12.7 Introduction to Geology 2 h. a. h. Lectures and laboratory topics include rocks and minerals, weathering, soils, strata, structure, geology, plate tectonics, mountain building, earthquakes, and seismology. Recommended for science majors and interested nonscience majors. Not open to students who have had 11.5, 11.6, 11.7, or 11.8.

12.9 Horseshoe in Geology 2 h. a. h. Lecture, laboratory, discussions, and field trips. Field work and interpretation of historic features of the earth's history in photographs and paintings. Topics include structural geology, stratigraphy, and physical geology of the earth's surface. Not open to any student who has had previous course work in physical geography or earth science.

12.10 Field Trip 2 h. a. h. Seven to ten days during spring recess in areas of geologic interest: central area of Florida; northern Arizona; Big Bend, Texas; region of southern Arizona; Baja California: Orizaba may be required.

12.11 Field Trip 2 h. a. h. Seven to ten days during spring recess in areas of geological interest: central area of Florida; northern Arizona; Baja California, Texas, region of southern Arizona; Orizaba may be required.

12.12 Elementary Paleontology 2 h. a. h. Lecture and laboratory dealing with principles of stratigraphy and historical paleontology by leguminous, seed ferns, and gymnosperms, etc. Prerequisite: 12.4.

For Undergraduates and Graduates

13.1-13.2 Physical Geography 2 h. a. h. Introductory course covering processes on which are based natural features of the earth's surface, utilizing the principles of physical geography. Not open to any student who has had previous course work in physical geography or earth science.

13.3-13.4 Historical Geography 2 h. a. h. Historical geology, including the processes that have generated and are shaping our physical environment: composition and deformity of the earth's surface; climate, oceanic circulation, and the cycles of water. Not open to any student who has had previous course work in physical geography or earth science.

13.5 The Way the Earth Works 2 h. a. h. How the "new geological" world has become integrated into our ideas of geography. Topics discussed in the context of place characteristics (environmental stress and survival of the fittest) include volcanoes, earthquakes, mountains, minerals, and nature reserves. Recommended for previous college level science course.

13.6 Historical Orientation 1 h. a. h. Advanced course for graduating students preparing for employment. Emphasis on the requirements and program: historical orientation, a field survey of local geology and environmental skills, an introduction to the use of specialized facilities. Recommended for senior geology graduate class or course of instruction.

13.7 Introduction to Geophysics 1 h. a. h. Survey of descriptive, chemical, physical, and geological processes of the earth's crust. Recommended for geology, geophysics, and earth science majors or electives.

13.8 Geology of Salt 1 h. a. h. Lecture, laboratories, and field investigations of the geologic history responsible for the development, occurrence, and economic resources of salt. Recommended for students with a previous course in geology or earth science.

13.9 Field Trip 2 h. a. h. Seven to ten days during spring recess in areas of geologic interest: central area of Florida; northern Arizona; Big Bend, Texas; region of southern Arizona; Orizaba may be required.

13.10 Horseshoe in Geology 2 h. a. h. Training in descriptive and mapping of rock units and geology. Structure in Wesson and Lower Mountain and/or Wesson and Upper Mountain. Prerequisite: 12.1, 12.2, and 12.3.

13.11 Energy in Contemporary Society 2 h. a. h. Energy as a political, economic, and social issue in the context of the global environment. Emphasis on the interdisciplinary implications of energy systems. Prerequisite: junior, senior, or permission of instructor.

13.12 Field Trip 1 h. a. h. Seven to ten days during spring recess in areas of geological interest: central area of Florida; northern Arizona; Orizaba, Texas; region of southern Arizona; Orizaba may be required.

13.13 Geologic Survey 2 h. a. h. May be repeated. Prerequisite: consent of the department.

13.14 Introductory Paleontology 2 h. a. h. Introduction to major plant and animal groups and to basic principles of classification, classification of fossil organisms. Credit for both will not be allowed.

13.15 Paleontology 2 h. a. h. May be repeated. Prerequisite: consent of the department.

13.16 Evolution of the Yeast 2 h. a. h. May be repeated. Prerequisite: consent of the department.

13.17 Introductory Paleontology 2 h. a. h. Introduction to major plant and animal groups and to basic principles of classification, classification of fossil organisms. Credit for both will not be allowed.

13.18 Paleontology 2 h. a. h. May be repeated. Prerequisite: consent of the department.

13.19 Field Trip 1 h. a. h. Seven to ten days during spring recess in areas of geological interest: central area of Florida; northern Arizona; Orizaba, Texas; region of southern Arizona; Orizaba may be required.

13.20 Field Trip 1 h. a. h. Seven to ten days during spring recess in areas of geological interest: central area of Florida; northern Arizona; Orizaba, Texas; region of southern Arizona; Orizaba may be required.

13.21 Field Trip 1 h. a. h. Seven to ten days during spring recess in areas of geological interest: central area of Florida; northern Arizona; Orizaba, Texas; region of southern Arizona; Orizaba may be required.

13.22 Paleontology 2 h. a. h. May be repeated. Prerequisite: consent of the department.

13.23 Field Trip 1 h. a. h. Seven to ten days during spring recess in areas of geological interest: central area of Florida; northern Arizona; Orizaba, Texas; region of southern Arizona; Orizaba may be required.
12/309 Metallurgy 3 sh.
Prerequisites: 12/209; consent of instructor.
12/312 Advanced German 3 sh.
Prerequisites: 12/311 or consent of instructor.
12/385 Seminar in Art History 1-3 sh.
Discussions and investigation of geomorphology topics such as structure, processes, pedology, microclimate, vegetation, and weathering. Prerequisites: 12/211 and 12/239.
12/371 Germanic Linguistics 3 sh.
Prerequisites: 12/370; instructor consent.
12/365 Geochemical Exploration 3 sh.
Studies techniques and use of the gravity and magnetic methods in practical exploration techniques. Preparatory to work, computer processing of data, and remote sensing. Prerequisites: 12/351.
12/380 Oceanography 3 sh.
Basics, techniques, and applications of oceanographic techniques and technologies. Uses of gravity and potential gradient. Preparatory to study of physical oceanography. Prerequisites: 12/208, 12/211, and 12/239. 
12/383 Geology 1-3 sh.
Survey of techniques used to solve geotechnical problems, including thieves' explain, seismic and aerial surveys, analytical examinations, sedimentology, and hydrographic techniques. Prerequisites: 12/350.
12/390 Academic Woodland and Aquatic 1-3 sh.
Geomorphology and its applications, earth's magnetic fields, eruptive geology, magmatic processes of igneous rocks, and classification of rocks. Prerequisites: 12/350.
12/393 Agricultural Geology 1-3 sh.
Origin of soils, parent rocks, and ore deposits, based on geology. Prerequisites: 12/350.
12/394 Advanced Geology 1-3 sh.
Prerequisites: 12/383. Credit can be earned by attending alternate years.
12/395 Seminar: Geology 1.5 sh.
Prerequisites: consent of instructor.
12/399 Research: Field and Laboratory 1-3 sh.
May be repeated.
12/430 Research: Geochemistry 1-3 sh.
May be repeated.
12/431 Research: Hydrology 1-3 sh.
May be repeated.
12/432 Research: Paleoclimatology 1-3 sh.
May be repeated.
12/433 Research: Environmental Geology 1-3 sh.
May be repeated.
12/434 Research: Subsurface Geology 1-3 sh.
May be repeated.
12/450 Research: Geology 1-3 sh.
May be repeated.
13/392 Research: Structural Geology 1-3 sh.
May be repeated.
13/290 Research: Geology 1-3 sh.
May be repeated.
13/590 Research: Geology 1-3 sh.
May be repeated.
13/392 Research: Geology 1-3 sh.
May be repeated.
13/590 Research: Geology 1-3 sh.
May be repeated.
14/350 Research: Geology 1-3 sh.
May be repeated.
14/590 Research: Geology 1-3 sh.
May be repeated.

German
Department chair: James P. Rueschard
Faculty: professors Edward Dovre, James P. Rueschard, John A.A. ter Haar, professor emeritus Fred L. Franke, associate professor Peter D. Perlman, Richard M. Ruge, John G. Hecht, associate professor emeritus Milan Zugstad assistant professor Judith A. Alken, Wolfgang Gritz, James P. Rueschard
Degrees offered: B.A., M.A., PH.D.

The primary function of the Department of German is to further the teaching of the language, culture, and literature of Germany, Austria, Switzerland, and the various Germanic countries. German literature graduates are prepared for work in government, foreign service, and commercial enterprises.

Undergraduate Program
Students majoring in German choose one of two major tracks: the humanities track or the applied German track.

The humanities 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 program in a business-oriented curriculum or an appropriate career focus.

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

Basic Program
13/11 First-Semester German 4 sh.
13/12 Second-Semester German 4 sh.
13/21 Third-Semester German 4 sh.
13/22 Fourth-Semester German: Reading 3 sh.
13/23 Fourth-Semester German: Elementary Composition and Conversation 3 sh.

Humanities Track
Third Year
13/31 Introduction to Modern German Literature 3 sh.
13/32 Introduction to Modern German Literature 3 sh.
13/34 Intermediate Composition and Conversation 3 sh.
13/34 Intermediate Composition and Conversation 3 sh.
13/38 First-Year German Cultural History 3 sh.
13/38 First-Year German Cultural History 3 sh.
13/112 Survey of German Literature 3 sh.

Students who intend to go on for an advanced degree are encouraged to add 13/103 German Phonology (three semester hours) to the above.

Applied German Track
Third Year
13/33 Intermediate Composition and Conversation 3 sh.
13/34 Intermediate Composition and Conversation 3 sh.
13/105 Principles and Techniques of Translation 3 sh.
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 3.0 overall and 3.5 in German. During the junior and senior years the honor student in German is expected to engage in extra readings and discussions, and to write a term paper (if feasible) for each of the courses in which he or she is enrolled. A senior essay, written under the supervision of a faculty member, and a comprehensive oral examination terminate 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 all major areas of German literature and Germanic linguistics at all levels of study.

The Foreign Language House 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 both language and culture is provided on three levels—intermediate, advanced, and very advanced. 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 optional cultural tour of Germany concludes 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 campus coordinator.

Graduate students are eligible to apply. All students are expected to speak only German while participating in the program. Program grants are available for qualified applicants.

For further information, write to the Department of German.

Master of Arts with Thesis

Graduate students of German who demonstrate an interest in 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 30 semester hours, or equivalent, of graduate-level work, and fulfillment of other requirements of the Department of German and the Graduate College (see the "Graduate College" section of the Catalog).

If the student has not completed major courses, or equivalents, in the department's undergraduate program, he or she will include them along with the courses required for the Master of Arts. Under some circumstances, the candidate may qualify for graduate credit for such make-up work.

With the graduate advisor's approval, some of the 20 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 may be either linguistic or literary, and is subject to the approval of the faculty.

Before the M.A. exam can be administered—usually 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.
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 38 semester hours of coursework and is considered a terminal degree.

The same 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 advisor, 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 Semitic 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 or in related subjects may be counted toward the degree with the approval of the graduate advisor.

A candidate concentrating in literature must demonstrate a reading knowledge of French and of another language such as Latin or Greek or Hebrew which is pertinent to the student's research interests. For doctoral candidates in Semitic linguistics, a reading knowledge of French or Russian and of a modern Scandinavian language or Dutch is required. Competence in these languages may be demonstrated by two years of college study or four years of high school study, with a grade of B or higher, or through testing. The student must meet the language requirements before taking the comprehensive exams.

Financial Aid

Teaching assistantships, teaching fellowships, and tuition scholarships are available for qualified graduate students. The department awards the Wilson and the Funkes prizes to students of distinction.

Courses

Primary for Undergraduates

132-11 First Semester Dutch

4.0

Uses grammar reading reading to teach students to read Dutch with understanding. Introduces basic structures of Dutch language and pronunciation. Prerequisite: 132-01 or equivalent. 132-12 Second Semester Dutch

4.0

Continues grammar reading approach, with emphasis on reading simple texts in Dutch, continued exposure to pronunciation and speech patterns. Prerequisite: 132-11 or equivalent. 132-21 Third Semester Dutch

3.0

Concentrates on developing skills by means of a broad grammar review and reading of advanced materials in Dutch literature, culture, news media, other sources; exposure to composition, conversation, oral comprehension. Prerequisite: 132-20 or equivalent. 132-22 Fourth Semester Dutch

3.0

Devoted to accurate and fluent reading at optimum level of understanding, based on introduction of major grammatical, stylistic and cultural elements of Dutch literature and culture.

152-01 German and German for Translators

3.0

152-02 German and German for Translators

3.0

152-01 First Semester German

4.0

Student has the option of taking either Reading: Approach emphasizes on reading and basic structure of the language, or Oral and Written Work: Approach is more on learning the grammar through listening and reading, with one hour of language laboratory per week. Prerequisite: 152-02 or equivalent.

152-11 Second Semester German

4.0

Continuation of 152-01, with same option of either approach. Grammar emphasis on vocabulary building, reading and listening.

152-21 Third Semester German

4.0

Combines standard first and second semester courses. Additional hours of language laboratory will be required. Prerequisite: 152-11 or equivalent.

152-21 Hanseatic and Early Literate of the Middle Ages

3.0

Introduction to the period, including Parzol, Amsbach, Busemann, and similar materials. Additional hours of language laboratory will be required. Prerequisite: 152-21 or equivalent.

152-31 Third Semester German

4.0

Continues course in late medieval and early literate of the Middle Ages as 152-21.

152-41 Fourth Semester German

4.0

Continues course in late medieval and early literate of the Middle Ages as 152-31. Prerequisite: 152-30 or equivalent.

152-42 Fourth Semester German Reading

3.0

Practicing of short forms of representative literary works. May be taken concurrently with 152-31. Prerequisite: 152-30 or equivalent.

152-43 Fourth Semester German Elementary Compositions and Demonstrations

3.0

May be taken concurrently with 152-42. Prerequisite: 152-41 or equivalent.

152-44 Intensive Second Semester German

4.0

Continues grammar reading approach, with emphasis on speaking and writing. Additional hours of language laboratory will be required. Prerequisite: 152-01 or equivalent. 152-51 Introduction to Modern German Literature

3.0

Reading and appreciation of representative German authors; study works influence others promote. Prerequisite: 152-41 or equivalent. 152-52 Introduction to Western German Literature

3.0

Combination of 152-41, Prerequisite: 152-41 or equivalent.

153-01 Intermediate Composition and Conversations

3.0

Recommended for students who intend to prepare their active command of the language in reading, speaking, and writing, 153-05 and 153-05 may be taken in either order, but not concurrently. Prerequisites: 152-20, 152-30, in any order. 153-03 Intermediate Composition and Conversations

3.0

Recommended for students who intend to prepare their active command of the language in reading, speaking, and writing, 153-20 and 153-30 may be taken in either order, but not concurrently. Prerequisites: 152-20, 153-20, in any order. 153-05 Modern Progri in German

3.0

For Undergraduates and Graduates

153 Individual German

3.0

Primarily for majors and minors in German. Available only by arrangement with instructor.

157 Advanced Composition and Conversations

3.0

Oral and written exercises, required of all upper division majors. May be repeated. Prerequisites: 153-20 or 153-30, in any order.

159 German Phonology

3.0

An introduction to the phonology of German language and introduction to problems of phonemic analysis, and phonetics, basic linguistics course. Prerequisites: 153-20 or 153-30, in any order.

159 The Third Reich and Literature

3.0

Must literature, literature of the Holocaust, and the Oppression, and exile literature. English translation. Prerequisite: 153-20 or 153-30, in any order.

159 German Cultural History

3.0

Cultural history of Germany from beginnings to present, with special emphasis on development of German literature. Prerequisites: 153-20 or 153-30, in any order.

159 Linguistics and Techniques of Translation

3.0

Introduction to theory of translation, with an emphasis on techniques of translating technical, scientific, juridical, and literary texts. Primary emphasis on German-English translation. Prerequisite: 153-20 or 153-30, in any order.

159 Translation: Projects and Evaluation

3.0

For students wishing to pursue individual translation projects. Efforts at translation are evaluated, with an interest, discussion of common problems and mutual evaluation of work by participants. Prerequisite: 153-20 or 153-30, in any order.

159 Biblical Literature in Translation

3.0

Representative works of Hebrew, Greek, Latin, 1. B. Singer, and others writing in Yiddish is the...
Language Courses for Graduate Nonmajors

10.100 Introductory German Elementary
Graduates only. Description same as for 12.100.
10.110 Introductory Second Year German
O-graduate only. Description same as for 12.210.
12.110 Reading
Service course for graduate students seeking
research and test competence in German as required
by their respective departments. Insured for those
students who have had no previous experience
in German, or for those who want a complete review
of prior experience with the language.
12.190 B. Reading

For Graduates

12.500 Advanced Studies
Special problems of German literature and
literature in graduate courses in German.
12.510 German Pronunciation
General introduction to graduate study in areas
of German literature and Germanic languages.
screening of methods of research; theory
of literature, and other specific problems.
12.510 German Pronunciation
Continuation of 12.510.
12.520 The German Novel
May be repeated.
12.522 German Poetry
May be repeated.
12.524 The German Drama
May be repeated.
12.527 German Novels

12.610 History of the German Language
Same as 10.610.
12.612 Middle High German
Prose in the language, conducting in linguistic,
synthetic, and historical contexts. Students
may not take both. Same as 12.612.
12.614 Middle High German Literature
Priority for students concentrating in literature.
12.624 High German
Same as 10.624.
12.626 German
Same as 10.626.
12.628 German
Same as 10.628.
12.634 Nature of the Modern Germanic Languages
Introduction to linguistic texts in German,
Scandinavian, and Norwegian. Same as 10.634.
12.650 Early German Literature
German literature from earliest documents to 1400.
12.681 German Literature of the Twentieth


Global Studies

Global Studies Program @ The University of Iowa: This program is designed to provide undergraduate students with a multidisciplinary study of major contemporary, cross-cultural issues and global problems. Undergraduate majors in any department, in any college, are eligible to enroll in the program. In each case, a student will complete all requirements for a departmental major and, in addition, the requirements of the Global Studies Program. Candidates for the Bachelor of Science in Global Studies degree may also be admitted to the program. However, because B.S. candidates have no departmental concentration, they will...
require very careful 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 will be encouraged to go beyond this minimal requirement.

Each student completing the 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, distributed as follows:

**Introductory Course**

The student normally takes this course, 41:1 Global Interdependence and Human Survival; in the freshman or sophomore year. It lays the foundation for all further study of global issues.

**Global Studies Courses**

These courses, regularly offered by University departments, are organized under four major headings, as set forth below. The student normally elects one course (3 semester hours) under each major heading, and two additional courses (6 semester hours) under one of the headings, for a total of six courses (18 semester hours).

**Multidisciplinary Senior Seminar**

This course, 41:180 Global Studies Seminar, is offered every spring semester and is required of all students in the program.

**War, Peace, and Security**

This component of the Global Studies Program deals with the use of armed force for pursuit or political ends on a continuum ranging from potential global war to the individual act of terrorism. The various approaches will consider causes, effects, limitation, and resolution of violence in the contemporary setting. All students must take either:

30:164 Military Affairs

or

16:149 War and Society

Students who elect to take three courses in this area would, in addition, take one of the following:

30:167 Arms Races and Arms Control

or

6E:123 Political Economy of the Military-Industrial Complex.

And one from this group:

30:146 The Politics of Southern Africa

30:165 Political Violence and Revolution

30:161 The United Nations

30:166 Politics of War and Peace

30:167 Arms Races and Arms Control

30:172 Introduction to International Law

16:90 Historical Background of Contemporary Issues

(When the course deals with issues of particular relevance to global studies students)

16:176 United States in World Affairs, 1800-1975

16:186 U.S.A. in a World at War, 1931-1945

6E:182 Literature of Peace and War

6E:123 Political Economy of the Military-Industrial Complex

**Development**

This component of the Global Studies Program deals with the problems of poor and developing countries, as analyzed along economic, sociological, and political lines. Of special interest are the ways in which developed and developing countries interact, and how these interactions are thought to influence the character and of the developing countries. All students must take either:

34:151 Sociology of the Third World (same as 113:151)

or

6E:129 Economic Development:

Undeveloped Areas

Students who elect to take three courses in this area would, in addition, take any two courses from this list:

30:148 African Development (same as 44:161, 45:162)

30:150 The Political Economy of the Third World

6E:125 International Economics

6E:127 Natural Resources in the World

Economy: Control and Conflict

6E:126 Economic Development:

Underdeveloped Areas

6E:168 The Political Economy of

Socialism

44:35 World Cities

44:183 The Third World

34:151 Sociology of the Third World (same as 113:151)

34:168 Economic and Political Development: Women's Roles

34:174 World Population Problems

7F:104 Education in Newly Developing Countries

19:261 Development Support

Communication

(opens to advanced undergraduates, with permission of instructor)

Certain area studies courses, drawn from the same area, may also be elected, subject to the program committee’s approval, to fulfill this requirement.

**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 consumption of these resources by man using modern technology.

All students must take either:

6E:133 Economic Growth and Environmental Decay

or

44:119 Natural Environmental Issues

Students who elect to take three courses in this area would, in addition, take any two of the following courses:

44:119 Natural Environmental Issues

44:123 Geography of Natural Resources

44:161 Energy in Contemporary Society

37:126 A Place in Crisis (same as 12:126)

6E:133 Economic Growth and Environmental Decay

34:174 World Population Problems
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, and these bear on the analysis of global problems and proposals for their amelioration.

Except as noted below, all students must take either:
32:13 World Order and Conflicting Values or 113:3 Introduction to the Study of Culture and Society except as noted below, students who elect to take three courses in this area would, in addition, take any two courses from the following list. Courses in group A explore the general social and some of the global value conflicts introduced in 32:13 World Order and Conflicting Values; courses in group B develop some of the more fundamental cultural processes and phenomena introduced in 113:3 Introduction to the Study of Culture and Society.

Group A
32:13 World Order and Conflicting Values
42:102 Preferred World Futures
30:185 Human Rights
91:193 Human Rights in the World Community: Problems of Law and Policy (enforced enrollment; same as 42:180)

6E:186 The Political Economy of Socialism
19:231 Problems in International Communication (open to advanced undergraduates, with permission of instructor)

Group B
113:3 Introduction to the Study of Culture and Society
113:10 Anthropology and Contemporary World Problems
113:14 Language and Human Behavior
113:147 Comparing Cultures
113:150 Culture and Personality
113:185 Woman's Role: A Cross-Cultural Perspective
113:172 Language and Culture
113:181 Race, Ethnicity, and International Relations

(see above as 113:1)
32:35 Religion in Human Culture

Students electing to concentrate in the program area may, as an alternative means of satisfying program requirements, take any 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 the above academic program, the Global Studies Committee organizes talks and conferences of interest to the general public as well as to students.

Courses
47:1 Global Interdependence and Human Survival 3.5
An introduction to the major social issues of the Global Studies Program; basic information relative to each of the principal civilizations, their interconnections, and identification of current efforts to cope with them.
47:7 Contemporary Africa 3.5
An introduction survey of the political, economic, and cultural life in sub-Saharan Africa.
47:199 Global Studies 3.5
A second course in the major global courses. Introduction and survey of a particular global problem or geographical area. (Contact the department for details.)
47:032 World Community 3.5
A survey of the major global societies and cultures. (Contact the department for details.)

Greek
See "Classic:"

History
Department chair: Charles A. Haze

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 the 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 specializations 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
Beckelhurst graduates in history go into a variety of positions in business, public service, or journalism. Many plan further training in history, law, religion, library science, or other fields.

A major in history includes work in other fields which will illuminate and expand the meaning of history courses as well as introduce the undergraduate to different bodies of information and approaches to understanding the ways societies and cultures work. It is, for example, strongly recommended that the College of Liberal Arts degree require study in a foreign language to aid by selecting a language which fits in with the major student's history interests.
The general major is for students with a general interest in history. The program requirements are:

A minimum of 24 semester hours in courses offered by the Department of History, of which at least 12 semester hours must be in non-U.S. history courses. This limitation is imposed to assure acquaintance with the History of at least one other society besides our own.

Three semester hours in 18:51 Colloquium for History Majors. A colloquium consists of a small number of students collectively studying problems in ways which give training and experience in group discussion, analysis, and criticism. It is best taken after the student has balanced a number of other history courses. Of the 24 semester hours of history required for the major, 12 (including the 3 hours of colloquium) must be taken in residence at the University of Iowa.

A minimum of 18 to 18 semester hours in related courses in anthropology, economics, fine arts (excluding studio courses), geography, literature (excluding workshop courses), philosophy, political science, psychology, religion, and sociology; or a second major in one of these areas. Core courses and courses taken to satisfy core requirements will not be counted toward the related-areas requirement.

It is recommended but not required that the student pursuing the general major in history meet the College of Liberal Arts historical-cultural core requirements with 11:29-30 Problems in Human History, 11:51-32 Western Civilization, or 11:55-56 Civilizations of Asia.

Prospective Teachers in History

Students majoring in history who wish to qualify for a teaching certificate must satisfy the Historical-cultural core requirement by taking any two of the following courses: 11:29-30 Problems in Human History, 11:31-32 Western Civilization, 11:55-56 Civilizations of Asia (a total of 6 semester hours) and must complete the professional courses in the College of Education which are required for teacher certification (a total of 23 semester hours). They must also take 18:51 Colloquium for History Majors.

They must choose an area of concentration in history and meet these requirements:

American History Concentration Courses in U.S. History 20 s.h.

Courses in related areas 36-44 s.h.

Students must select three of the following six related areas: economics, geography, world history (non-U.S.), political science, psychology, sociology. They must take 12 semester hours of courses in each of the three areas they choose, except psychology, in which they must take 30 semester hours. Courses in these subjects which have been taken to satisfy the social science core requirement may be applied to the required hours in related areas, but no more than one such course may be applied to any one related area.

World History Concentration Courses in non-U.S. History 20 s.h.

Courses in related areas 36-44 s.h.

Students must select three of the following six related areas: economics, geography, American history, political science, psychology, sociology. They must take 12 semester hours in each of the three areas they choose, except psychology, in which they must take 20 semester hours. Courses in these subjects which have been taken to satisfy the social science core requirement 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. Up to 4 semester hours from history core courses (11:29-30, 11:31-32, 11:55-56) may be counted toward the required 20 semester hours in non-U.S. history.

Students seeking the teaching major in History 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 an extremely 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 usually must be made by the beginning of the junior year, and the completion of the honors major leads to the Bachelor of Arts degree with honors in history. Requirements are:

A minimum of 24 semester hours of work in history, with at least 9 hours in the department's honors offerings, which may include up to 8 semester hours of honors thesis credit. Colloquium courses may also be counted for honors credit in lieu of honors seminars.

Related courses outside the department (same as regular major requirement).

Successful completion and oral defenses of an honors thesis.

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 U.S. archival work, library work, or historical editing. Some students enter the program leading to degrees in both law and history (see the "College of Liberal Arts" 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 history. Twelve, including at least one seminar, must be in the area of the student’s essay topic, and at least 6 must be in a
second division, including either a seminar or readings course. The essay is 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 180 full individual study. Graduate, in which rewriting will be completed under the guidance 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 10:296.

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 20 semester hours of graduate credit, 24 semester hours of which must be in history. Of these, at least 12 must be taken in one division, and must include at least one reading or seminar course. The program must also include at least 6 semester hours in each of two other divisions in history, or 6 hours in one other division in history and 6 hours in a related department. These hours must include at least one reading 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 a 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 institution must meet the general requirements for admission to the Graduate College (see the "Graduate College" section of the Catalog), and must submit a specimen of their writing, such as a seminar paper or an M.A. thesis.

The candidates must earn at least 72 semester hours of credit, including credit for work done toward the master's degree. The 72 semester hours must include at least 24 semester hours in 200-level courses in history, apart from thesis credit. At least 16 of the 24 hours must be completed before the student takes the comprehensive examinations, and at least 16 of these 24 hours must be completed at The University of Iowa. The candidate must also earn 2 seminar hours of credit in the philosophy of history, historiography, or methods of historical research.

The department has no common language requirement for the Ph.D., but the supervisor may require the candidate to demonstrate a reading knowledge of one or more foreign languages and proficiency in the use of other tools of study. The candidate may not complete the comprehensive examination until these requirements have been met.

The comprehensive written and oral examination will cover four distinct topics, at least three of them in history. The fields in history must be chosen form at least two of these divisions: The Ancient World, Medieval Europe, Europe, 1500 to 1815, the Soviet Union, Latin America, History of China, Japan, India.

The committee may define and detail the individual fields for examination. It may also select, separately for each field, the character of the written portion of the comprehensive examinations, which may take the form of a syllabus, a critical bibliography, a topical paper, or any other form or combination of these or other forms that the committee deems suitable. The oral portion of the comprehensive 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, seminar paper, or M.A. thesis—to the history department. All applications for graduate study are due February 15 for the following year. Applications for admission are due April 15 and November 10 for the following semester. Applicants must take the Graduate Record Examination aptitude tests 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 detailed regulations on study toward advanced degrees and other information of interest to prospective students.

Special Facilities

The University Library is strong in all aspects of U.S. History. It houses the Henry A. Wallace papers and related collections, as well as other unique materials. In European History, the special strengths are in French, English, and German. 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

All courses numbered below 200 are open to undergraduates provided they have already satisfied the historical-cultural core requirement. Most courses numbered below 200 are offered in alternate semesters. Most courses numbered 200 and above are offered as occasion demands.

181 Colloquium in History Hours

This course is a colloquium in which faculty are invited to present papers. Open to other than History majors by consent of instructor. Open only to seniors. May be repeated for credit. Students must meet the requirements for admission to the Graduate College.

185 Introduction to Afro-American History

This course is an introduction to the history and culture of African-Americans. Core at 4580.

1921 Colloquium in History Hours

This course is a colloquium on the history of a specific topic, usually the United States, but sometimes on another topic. Open to other than History majors by consent of instructor. Open only to seniors. May be repeated for credit.
Home Economics

The mission of the Department of Home Economics is to enhance the quality of life with a program designed to develop a working understanding of the individual within his/her environment.

Through education, the department prepares professional home economists to work with individuals and families, or with businesses, agencies, and organizations providing goods, services, and programs which enhance the quality of life. It also contributes to the liberal and professional education of nonspecialists.

Through research, the department creates new knowledge for and about individuals and families.

Through community service and other activities, the department directly assists individuals and families with their needs and problems.

Through study, understanding and use of design and housing, family development, food and nutrition, home economics education, and textile and clothing, home economists contribute to the physical, psychological, social, and aesthetic development of people.

Home economics as a career offers a wide range of opportunities: teaching, dietetics, merchandising, interior and textile design, product development and quality control in textile and food industries, consumer relations, family life education and services, food service management, and service with community or government agencies.

Undergraduate Program

The undergraduate program prepares students for immediate employment as professional home economists, and also for advanced study.

Concentration in design and housing, family development, food and nutrition, home economics education, or textiles and clothing makes it possible for undergraduates majoring in home economics to seek employment in a variety of fields.

Joint programs may be arranged with other fields such as journalism, art, or social work.

In meeting the general requirements for the B.A. or B.S. degree or the College of Liberal Arts, students majoring in home economics need to select courses in other departments which also are prerequisites for home economics courses.

All students majoring in home economics complete the core:

17:0 Human Development and the Family 3 a.h.
17:41 Food, Nutrition, and Men 3 a.h.
17:50 Design for the Home 3 a.h.
17:50 Textiles for Consumers 3 a.h.
17:111 Management of Family Resources 3 a.h.
17:12:28: Home Economics 2 a.h.

Bachelor of Arts

Design and Housing

Students concentrating in design and housing are prepared to pursue careers in the following areas: residential and contract interior design, space planning, design consulting, merchandising, fabric design, and teaching. The requirements for this concentration are:

17:52 Presentation Graphics 3 a.h.
17:54 Interior Design: Principles and Practices 3 a.h.
17:158 Survey of Historic Interiors 3 a.h.
17:180 Textile Design: Printing and Dyeing 3 a.h.
17:185 Housing: Planning and Structural Aspects 3 a.h.
Two of the following:
11:37 Form and Theory in the Visual Arts 4 s.h.
11:38 Art in the Western World 4 s.h.
11:42 Art in East and West 4 s.h.
11:1 Art: Elements of Art 2-3 s.h.
or
12:2 Elements of Art 2-3 s.h.
or
An approved two-dimensional studio art course
11:4 Basic Design 2 s.h.
or
An approved three-dimensional studio art course
6E:1 Principles of Economics 4 s.h.
or
6E:2 Principles of Economics 4 s.h.

Also required are two of the following, one of which must be a studio course:
17:152 Interior Design: Principles and Practices II 3 s.h.
17:154 Interior Design: Principles and Practices III 3 s.h.
17:156 Survey of Modern Interiors 3 s.h.
17:167 Historic Restoration Methodology 3 s.h.
17:162 Textile Design: Weaving 3 s.h.
17:164 Textile Design: Forms and Flavors 3 s.h.
17:166 Housing: Social and Psychological Aspects 3 s.h.

Electives from home economics, business administration, urban and regional planning, art history, studio art, social sciences, and theater are recommended.

Family Development
This program prepares students for careers with agencies and services concerned with the total family and its functioning, for family life education, and for the extension service. The following courses are required:
17:10 Growth and Development of the Young Child 3 s.h.
17:112 Personal Financial Management 3 s.h.
17:153 Marriage and Family Interaction 3 s.h.
17:114 Parent-Child Relationships 3 s.h.
17:115 Parent-Child Relationships in the Exceptional Family 3 s.h.
17:119 Directed Studies in Family Development 3 s.h.
17:122 Materials and Methods in Family Life Education 3 s.h.
31:111 Elementary Psychology 4 s.h.
34:1 Introduction to Sociology: Principles 4 s.h.
34:159 The Family in Various Societies 3 s.h.
or
34:161 The American Family 3 s.h.
34:162 Family Economics 3 s.h.

Electives from home economics, education, social work, economics, psychology, and sociology are recommended.

Food and Nutrition
This program prepares students for careers in dietetics and the food industry, and for service with community and government agencies. A concentration in food and nutrition requires:
17:131 Food Study 2 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 2 s.h.
17:134 Experimental Food I 3 s.h.
17:135 Experimental Food II 3 s.h.
or
17:146 Nutrition Laboratory 2 s.h.
17:147 Nutrition 3 s.h.
4:13-14 Principles of Chemistry I 6 s.h.
4:16 Elementary Chemistry Laboratory I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
4:141 Intermediate Chemistry Laboratory I 2 s.h.
61:157 General Microbiology 4 s.h.
72:1 Introduction to Human Physiology 4 s.h.
99:130 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.

Electives should be selected from home economics and the natural sciences. A concentration in nutrition with emphasis on dietetics requires:
17:131 Food Study 2 s.h.
17:132 Food Study Laboratory 2 s.h.
17:133 Meal Management 2 s.h.
17:134 Experimental Food I 3 s.h.
17:135 Experimental Food II 3 s.h.
17:136 Food Service Systems Management 3 s.h.
17:137 Food Service Administration 3 s.h.
17:143 Nutrition 3 s.h.
17:147 Diet Therapy 3 s.h.
4:12-14 Principles of Chemistry I 6 s.h.
4:16 Elementary Chemistry Laboratory I 2 s.h.
4:121 Organic Chemistry I 3 s.h.
99:130 The Chemistry of Biological Materials 3 s.h.
99:130 Metabolism 3 s.h.
61:1 Principles of Economics 4 s.h.
51:156 Personnel Management 3 s.h.
7F:75 Educational Psychology and Measurement 3 s.h.
or
7F:131 Educational Psychology 3-4 s.h.
34:1 Introduction to Sociology: Principles 4 s.h.
or
3:1 Elementary Sociology 4 s.h.
81:157 General Microbiology 4 s.h.
72:13 Introduction to Human Physiology 4 s.h.
11:33 Introduction to the Study of Culture and Society 4 s.h.

Electives should be selected, according to the student's professional objective, from the natural sciences, business administration, psychology, computer science, statistics, education, and home economics.
This program follows minimum academic requirements of the American Dietetic Association Plan IV. All students applying for internships should have their programs centrally screened the first semester of the senior year.

Home Economics Education
This program leads to certification and vocational approval in some economics. Graduates are qualified to teach home economics in vocational and nonvocational secondary schools, to work in home economics extension and other agencies, and to teach in home school settings. Required courses for this concentration are:
17:31 Introductory Food Study 2 s.h.
or
17:101-132 Food Study, Food Study Laboratory 4 s.h.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>17:112</td>
<td>Personal Financial Management</td>
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<td>17:113</td>
<td>Marriage and Family Interaction</td>
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<td>17:114</td>
<td>Parent-Child Relationships</td>
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<td>17:121</td>
<td>Curriculum: Home Economics</td>
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<td>17:129</td>
<td>Evaluation: Home Economics</td>
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<td>17:132</td>
<td>Meal Management</td>
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<td>17:168</td>
<td>Housing: Planning and Structural Aspects</td>
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<td>17:168</td>
<td>Housing: Social and Psychological Aspects</td>
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<td>17:170</td>
<td>Custom and Contemporary Tailoring</td>
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<td>17:171</td>
<td>Fitting Problems and Flat Pattern Design</td>
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<td>Elements of Art</td>
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<td>18:2</td>
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<td>31:1</td>
<td>Elementary Psychology</td>
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<td>34:1</td>
<td>Introduction to Sociology: Principles</td>
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In addition, students must complete the coursework generally required for teacher certification. The methodology course is required in home economics education is 75:125 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 completed 28 semester hours of home economics courses with a 2.5 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 (for example, food service, day care center, retailing) for certification. This work experience can be through 17:000 Cooperative Education Training Assignment or through verification of work experience. Electives should be selected from education, journalism, psychology, sociology, and communication.

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**Textiles and Clothing**

This program prepares students for careers in merchandising and related areas.

- **Concentration in fashion merchandising requires:***
  - 17:70 Introductory Clothing Construction: 3 s.h.
  - 17:71 Apparel, Fashion, and Selection: 3 s.h.
  - 17:170 Custom and Contemporary Tailoring: 3 s.h.
  - 17:171 Fitting Problems and Flat Pattern Design: 3 s.h.
  - 17:173 Fashion Merchandising: 3 s.h.

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**Bachelor of Science**

The B.S. programs are recommended for students who want greater depth or breadth in the natural sciences, and for those interested in research positions in colleges and universities or in industrial, governmental, or medical research laboratories.

**Food and Nutrition**

In addition to the requirements for the B.A. degree emphasizing food or nutrition, the B.S. degree requires the following courses:

- 22M:3-9 Mathematical Techniques: 6 s.h.
- 22M:20 Elementary Functions: 3 s.h.
- 22M:25 Calculus I: 4 s.h.
- 29:11-2 College Physics: 4 s.h.
- 4:130 Physical Chemistry for the Life Sciences: 3 s.h.
- 98:14C Experimental Biochemistry: 4 s.h.

**Home Economics Education**

Graduates can enter the careers described for the B.A. degree in home economics education. The B.S. program enables students to obtain greater depth...
and breadth in the natural and social sciences. In addition to the courses and work experience listed for the B.A. degree, the B.S. requires:

4-7-8 General Chemistry I-II 6 s.h.
4-9 General Chemistry Laboratory 2 s.h.
A course in statistics 3 s.h.
Two courses from the natural sciences and/or courses numbered 100 or above in anthropology, economics, psychology, or sociology 6-8 s.h.

Textile Science
This program prepares students for positions in the textile industry and for graduate studies. In addition to courses listed for the B.A. degree in textiles technology, the following are required for the B.S. degree:

4-101 Elementary Quantitative Analysis 4 s.h.
4-121-122 Organic Chemistry I-II 8 s.h.
22M:25 Calculus I 4 s.h.
22M:26 Calculus II 4 s.h.
22M:29 Computation Laboratory for Calculus and Linear Algebra 1 s.h.
29-11-12 College Physics 8 s.h.

Electives should be selected from chemistry, engineering, computer science, actuarial science, microbiology, and home economics.

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. Majors who are concentrating in design and housing, home economics education, or textiles and clothing, and who meet the department’s requirements, may apply to the Cooperative Education committee for participation in this program. Students register for 17-000 Cooperative Education Training Assignment at the time of their work experience and for 17:196 Home Economics Internship during the subsequent semester.

Honor Program
To be eligible for honors, the student must have junior standing, 30 semester hours in residence at the University, an overall cumulative grade-point average of 3.0 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 17:161 Honors Seminar: Home Economics and 17:162 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 Program
The demand for well-qualified professional home economists far exceeds the number of graduates with advanced degrees. The master’s degree graduate may qualify for positions in colleges, secondary schools, business, industry, and government.

The graduate program enables students to obtain depth through specialization in one of five subject areas: design and housing, family development, food and nutrition, home economics education, and textiles and clothing.

The department offers both 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 supervised courses (in research procedures or the opportunity for extensive creative work). The thesis may be undertaken in the department, 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 interest in graduate study. Conditional admission requires an overall grade-point average of 2.5 with 2.8 in the area of major interest in graduate study.

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 in a thesis, or 36 semester hours of graduate work without a thesis, in addition to adequate prerequisites for courses selected. Approximately one-third of the student’s coursework is offered in departments other than home economics. These courses must be taken for a letter grade. 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.

Design and Housing
Graduate study in design and housing may be planned as a specialized program 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 prior to admission.

A variety of career opportunities exist in the M.A. degree in design and housing. These include college teaching, interior design, textile design, historic preservation and restoration, and positions in interior design and industry.

Courses for interior design specialization:
17:153 Interior Design: Principles and Practices 8 s.h.
17:154 Interior Design: Principles and Practices III 3 s.h.
17:155 Survey of Historic Interiors 4 s.h.
One course in textile design 3 s.h.
One course in housing 3 s.h.
Courses for textile design specialization:
17:180 Textile Design: Printing and Dyeing 3 s.h.
17:182 Textile Design: Weaving 3 s.h.
17:184 Textile Design: Forms and Fibers 3 s.h.
17:250 Studio Workshop in Fiber 4 s.h.
One other course in textile design 3 s.h.

Family Development
The graduate student in this program gains both psychological and sociological perspectives in human development and family relationships. The plans of study may emphasize either human development, family relationships, 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 courses for the family development concentration are:
17:186 Individual and Family Development: Life Span 3 s.h.
17:212 Seminar: Family Dynamics 3 s.h.
17:213 Theory in Family Development 3 s.h.
17:219 Research Problems in Family Studies 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 content areas:
Child development
Human sexuality
Family economics/communication issues
Aging

Food and Nutrition
Graduate work in this program may emphasize foods, nutrition, or nutrition education. Graduates qualify for positions in educational institutions, business, industry, government, and the health field. Applicants need background courses in foods, nutrition, general and organic chemistry, mathematics, microbiology, and psychology.
Courses required for the M.S. degree with specialization in food are:
17:134-135 Experimental Food 1-2 6 s.h.
17:236 Seminar: Food 2 s.h.
17:238 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
99-120 The Chemistry of Biological Materials 3 s.h.
99-130 Metabolism 3 s.h.
157 General Microbiology 4 s.h.
225/101 Biochemistry 3 s.h.
or 7P:143 Introduction to Statistical Methods 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.
17:238 Research: Problems in Food and Nutrition 2-4 s.h.
17:241 Seminar: Nutrition 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
99-120 The Chemistry of Biological Materials 3 s.h.
99-130 Metabolism 3 s.h.
225/101 Biochemistry 3 s.h.
or 7P:143 Introduction to Statistical Methods 3 s.h.
Courses required for the M.A. degree with specialization in nutrition education are:
17:124 Nutrition Work with Children 3 s.h.
or (substitutes, depending on professional goal)
17:145 Advanced Nutrition 3 s.h.
17:146 Nutrition Laboratory 2 s.h.
17:238 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.
7P:131 Educational Psychology 3 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.
99-120 The Chemistry of Biological Materials 3 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 field 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 teacher's certificate. At least two of the courses outside the department in the thesis option and three in the project option must be from the same department.
The program's course requirements are:
17:233 Seminar: Readings in Home Economics Education 2 s.h.
17:239 Research Problems: Home Economics Education 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
7P:143 Introduction to Statistical Methods 3 s.h.
Another 200-level home economics course 2-0-3 s.h.

Textiles and Clothing
This program prepares students for careers in merchandising, textile research, teaching, extension service, and communication. Graduates need background courses in textiles, clothing, and chemistry. Courses required for the textiles and clothing concentration are:
17:276 Research: Problems in Clothing 3 s.h.
or 17:286 Seminar: Problems in Textiles 3 s.h.
17:290 Seminar: Home Economics Research 2 s.h.
Another course in statistics or
Additional courses in textiles and clothing are required, based upon the student's educational background and professional needs.
Master of Arts in Teaching
The M.A.T. program is designed for students with an undergraduate degree in home economics who have had few or no professional education courses. The program is nonthesis 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 2.5 minimum undergraduate grade-point average, and must be admitted to the M.A.T. program in the College of Education.
The program requires 20 semester hours of graduate coursework in education and at least 18 semester hours of graduate work in home economics. For certification, the student must complete the undergraduate and/or graduate level a course in American politics or American government, a course in human relations, and two courses in each of the following areas: design and housing, family development, food and nutrition, 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 s.h.
17:126 Evaluation: Home Economics 2 s.h.
F1:131 Educational Psychology 3 s.h.
75:125 Methods: Home Economics 3 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 2 s.h.
One course in the philosophy or history of education 2 s.h.
Certification-Only Program
Students with the B.A. or B.S. degree in home economics may enroll in the certification program in order to meet requirements for becoming vocational home economics in secondary schools. Courses for this program are selected according to the student's personal and professional goals. See the "College of Education" section of the Catalog.
Financial Awards
Several national departmental awards recognize undergraduate students for their outstanding qualities and performance. The Frazor-Nichols Writing Award is given for excellent written work completed in home economics courses. The Sophomore Book Award recognizes the sophomore home economics major with the highest grade-point average. The Margaret Foster Hort Award is a full-tuition scholarship given to a student for her or her senior year. The Myrna Lee Swangve Memorial Award is given to an outstanding home economics senior.
Two awards are for graduate students. The Mary Campbell Tow Scholarship is given to a student beginning graduate study. The other scholarship is provided by the Iowa Home Economics Association. A limited number of assistantships are available to graduate students.
Courses
Primary for Undergraduates
17:000 Comparative Education Testing Judgment 0 s.h.
17:186 Family Development and the Family Transaction in the Total Environment: Special Emphasis Areas on Family, 3 s.h.
17:187 Growth and Development in the Young Child 3 s.h.
17:193 Growth and Development of Young Children: emphasis on focused understanding growth and change. 3 s.h.
17:211 Introduction to Food Science Use of basic principles in preparation of standard home economics laboratory techniques. 3 s.h.
17:414 Food, Nutritious, and Men 3 s.h.
23:126 Experimental and environmental aspects of nutrition; basic principles are nutrition; preparation of food. 3 s.h.
17:320 Dental for the Home Introduction to dental health and proper care of home economics students. 3 s.h.
17:321 Professional Graphics 0 s.h.
17:322 Professional Graphics 0 s.h.
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Students in both sequences must fulfill these foundation requirements:

- 19:103 Bolin Scientific Foundations of Communication 3 s.h.
- 19:105 Broadcast Journalism 3 s.h.
- 19:116 Introduction to Journalistic Writing 3 s.h.
- 19:130 Legal and Ethical Issues in Communication 3 s.h.

Total: 12 s.h.

After completing the foundation courses listed above, the student selects one of the two sequences outlined below to fulfill the 36 semester-hour degree requirement.

**News-Editorial Sequence**

This sequence is concerned with the gathering, organizing, and effective writing of news and other information from printed, human, and environmental sources, and with the processing, packaging, and display of news stories, articles, and illustrations, for printed and broadcast media. It also provides for the development of the various technical skills required for work in the student's choice of media. The sequence is approved by the Academic Council on Education for Journalism (ACEJ). The following journalism courses are required:

- **Foundation Courses**
  - 12 s.h.
  - 19:112 News Reporting and Writing 4 s.h.
  - 19:114 News Processing 3 s.h.
  - 19:116 Advanced Reporting 2 s.h.
  - Journalism electives 5 s.h.
  - Total: 30 s.h.

- **Maximum journalism credits allowed toward graduation:** 36 semester hours

**Mass Communication Sequence**

The mass communication sequence offers several approaches to the journalism major.

The laboratory-oriented approach stresses applied theory and practice to help students develop and refine their skills in such areas as writing, graphic design and typography, and motion picture photography and audio and video production. Career possibilities include broadcasting, video, public relations, and organizational communication.

- Another approach in the sequence is primarily theoretical. It emphasizes the acquisition of knowledge about communication as a field and seminar settings in which the broadcast perspective is humanistic and theoretical. This track concentrates on the study of communication as a way of comprehending society and human interaction, with the focus in historical, philosophical, and social scientific models of understanding. Students following the theoretical approach in the mass communication sequence often pursue graduate studies in other related areas.

The following courses are required for the two tracks of this sequence:

**Laboratory Track**

- **Foundation courses**
  - 12 s.h.
  - One 2-journalistic writing course, 3-4 semester hours, selected from:
    - 19:112 News Reporting and Writing 4 s.h.
    - 19:135 Broadcast Journalism 5 s.h.
    - 19:147 Free-Lance Workshop 3 s.h.
  - Two skills/product courses, 6 semester hours, selected from:
    - 19:114 News Processing 3 s.h.
    - 19:138 Broadcast/Print Workshop 3 s.h.
  - 19:148 Current Magazine Practice 3 s.h.
  - 19:150 Photocommunication I 4 s.h.
  - 19:156 Graphic Design and Production 3 s.h.
  - 19:181 Mass Communication Lab 3 s.h.
  - Total: 30 s.h.

- **Maximum journalism credits allowed toward graduation:** 36 semester hours

**Theoretical Track**

- **Foundation courses**
  - 12 s.h.
  - 19:102 Special Topic in Communication 2 s.h.
  - 19:112 News Reporting and Writing 4 s.h.
  - Total: 30 s.h.

- **Honors Program**

Students with superior ability may participate in the Honors Program. Freshmen with outstanding academic records are eligible to participate.

Upperclassmen who excel in mind the honors courses, to graduate with honors, a student must complete specified requirements, including 6 semester hours of journalism honors courses, for other requirements, see the school's Honors Program adviser.

**Graduate Programs**

Master of Arts

The School of Journalism and Mass Communication offers a Master of Arts program with two separate emphases: professional journalism or communication and mass communication. Applicants should indicate the emphasis to which they are seeking admission.

Both emphases require 30 semester hours of approved coursework, the completion of a master's project or thesis, and the successful completion of the final examination. The specific requirements of each emphasis are listed below.

**Professional Journalism Emphasis**

This emphasis is intended for students seeking to improve their technical and analytical skills and broaden their understanding of the role and function of mass communication in contemporary society, but who do not plan to engage in Ph.D. work.

Program requirements for students with a B.A. or B.S. degree in journalism and communication:

- 19:112 Master's Seminar 3 s.h.
- 19:112 News Reporting and Writing 4 s.h.
- 19:240 Specialized Reporting 4 s.h.

- **Maximum journalism credits allowed toward graduation:** 36 semester hours
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16:181 Mass Communication Lab 4 s.h.
19:181 option intended for students with special interest in public relations or organizational communication.

Electives 16-17 s.h.
19:251 Master’s Research 3 s.h.
Final examination, last period of enrollment

Program requirements for students who have prior professional experience in journalism or communication:
19:200 Master’s Seminar (minimum) 3 s.h.
Electives in the school 9 s.h.
Electives in other departments 15 s.h.
19:251 Master’s Research 3 s.h.
Final examination, last period of enrollment

The student must complete a major professional project (19:251) 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 the 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:
19:200 Master’s Seminar (two semesters) 2 s.h.
19:201 Approaches to the Study of Communication: Issues and Concepts 3 s.h.
19:200 Communication Research: Historical Approaches or
19:291 Communication Research: Behavioral Approaches 3 s.h.
Electives in communication and mass communication and in other departments 19 s.h.
19:251 Master’s Research 3 s.h.

Final examination, last period of enrollment

All students are expected to take coursework outside the School of Journalism and Mass Communication; the nature and extent of the outside work is to be determined by the student and faculty advisor.

Doctor of Philosophy

The Ph.D. program emphasizes interdisciplinary inquiry into mass communication phenomena within cultural and historical perspectives. Such perspectives imply that an understanding of these phenomena cannot arise solely out of narrowly focused analysis of present conditions. Rather, the approaches emphasize philosophical, evaluative, and critical inquiry into relationships between mass media and society across time and culture. The program’s substantive nature is defined by the scholarly interests of its faculty, who turn most frequently to investigations of historical, legal, social and cross-cultural aspects of communication, both verbal and visual, and is organized in a series of courses and tutorials.

The Ph.D. program is highly individualized. Drawing on the School of Journalism and Mass Communication and other academic units, each student develops a specific course of study that reflects his or her academic background, experience, professional goals, and intellectual preferences. Applicants should be interested in the opportunity to join a small group of faculty and students working to understand mass communication in its cultural contexts.

Iowa Center for Communication Study

The center encourages and facilitates inquiry into communication problems by faculty members and students. Center services include consultation, training, publication, assistance in obtaining financial support for projects, and assistance in computer use and data analysis. The center also publishes the semiannual Journal of Communication Inquiry, which is student-edited and seeks to explore different approaches to communication theory and research.

Other Special Facilities

The School of Journalism and Mass Communication is housed in the three-story Communications Center. The center has specialized laboratories for photography, hypertext, videotaping, typing, slide preparation, and print production, including a simulation electronic newsroom. Many students use the newsroom and other facilities of the award-winning University student newspaper, The Daily Iowan, housed in the Communications Center. The center also has its own Resource Center/housing room and gallery for student and faculty photography and/or project display.

Financial Aid

In addition to research and teaching assistantships for graduate students, more than $20,000 in scholarship and financial aid is available to both undergraduate and graduate students. To determine eligibility, write for more information.

Internships/ Professional Experience

The University of Iowa program has a strong commitment to providing students with media internships experiences. During the academic year, the school maintains a number of public relations internships through The University of Iowa Office of Public Information. University faculty members also help students arrange summer internships in Iowa and outside the state. The internships are designed and monitored to aid the student's professional growth. In addition to internships, student-operated and faculty-sponsored media provide opportunities for professional experience.

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Iowa Lakeside Laboratory

Teaching and research facilities include seven laboratories and a lecture hall. Living accommodations include cottages, dormitories, and a large mess hall.

Financial Aid

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

Registration

Current and former students of the University of Iowa, the University of Northern Iowa, and Iowa State University should ask their registrars for particulars. Students from other institutions must apply for admission to one of the three cooperating universities, each has a provisional admission policy for students who wish to register for summer work only. Early registration is advisable. All applications should be submitted before May 1 for the summer session following.

Courses

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

L101 Field Biology

Introduction to life and natural history, into 19 field studies in Iowa forests, laboratory techniques, discussion of arthropods and mammals, overview o plants and animals of the region. For students who have some knowledge of biology and want field experience.

L102 Aquatic Ecology

Local aquatic plants and animals, analysis of aquatic communities, aquatic ecologic principles, rivers and wetlands, with an emphasis on the Iowa Lakes region. For students with at least one course in biology and interest in field experience.

L204 Aquatic Ecology

Field techniques in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L205 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L206 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L304 Aquatic Ecology

Field techniques in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L305 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L306 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L404 Aquatic Ecology

Field techniques in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L405 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L406 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L504 Aquatic Ecology

Field techniques in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L505 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L506 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L604 Aquatic Ecology

Field techniques in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L605 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.

L606 Field Ecology

Introduction to field methods in natural history of animal habitats, emphasizing the ecology of grassland, freshwater, and wetland habitats, interactions, and pollution. Field and laboratory work, with readings and field trips. For students with at least one course in biology and interest in field experience.
Latin American Studies Program

Coordinating: Nora England
Faculty: Joseph Annand Bearson (Economics),钊隆 Emeritus (Spanish and Portuguese), Charles Hine (History), Valerie Nuzzo (Economics). Michael Melody (Geography), James Myers (Political Science), Bruce Perry (Spanish and Portuguese), Piers Ross (Political Science), associate professors Thomas Charlton (Anthropology), Enrique embirikos (Spanish and Portuguese), Peggy Frank (Spanish and Portuguese), Oscar Sanin (Spanish and Portuguese).

Certificate Requirements

Primary Courses

To meet the requirements of knowledge about Latin America and breadth in a variety of disciplines that deal with the area, students seeking the Certificate in Latin American Studies must earn at least 18 semester hours of credit in courses listed below, including at least 6 semester hours in each of at least three of the four primary cooperating departments: Anthropology, History, Political Science, and Spanish and Portuguese. Primary courses are courses dealing specifically with Latin American topics.

Electives

Students choose 6 semester hours of electives from the primary course offerings.

Related Courses

The student chooses an additional 12 semester hours in related courses. These are courses whose content includes some material directly concerned with Latin America or that treat issues relevant to the area. Courses in this group may be selected from additional offerings of the primary departments, from approved courses offered by the related departments, and/or from other University courses approved by the student's Latin American Studies advisor.

Senior Seminar

Seminar is the program enroll in 113:322 Latin American Studies Seminar, a 4-semester-hour interdisciplinary course built around problems of specific interest to Latin American and taught by two faculty members from the primary departments.

Overlapping Credits

While the certificate program requires 48 semester hours of coursework, students majoring in any of the program's four primary departments are able to count a significant number of the courses required for their majors toward the Certificate in Latin American Studies, and students majoring in related departments may be able to count a portion of their major requirements toward the certificate.

Minor

To earn a minor in Latin American Studies, students complete 18 semester hours in primary course, 12 semester hours of which must be in courses numbered above 100. To preserve the interdisciplinary character of the Latin American Studies minor, students majoring in any of the primary departments cannot count more than 6 semester hours from courses in their major department toward the minor.

Primary Courses

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

Anthropology

- 113:118 Ethnology of South America 3 s.h.
- 113:119 Ethnology of Mexico 3 s.h.
- 113:120 Social Anthropology of the Caribbean 3 s.h.
- 113:131 Latin American Economic Society 3 s.h.
- 113:132 Latin American Studies Seminar 3 s.h.
- 113:149 Comparing Cultures 3 s.h.
- 113:163 High Civilians of Mexico 3 s.h.

History

- 10/09 Culture and Politics of Latin America 3 s.h.
- 16/192 The Maxims Revolution 3 s.h.

Political Science

- 120:14 Latin American Government 3 s.h.
- 33:145 Major States of Latin America 3 s.h.
- 33:163 Inter-American Relations 2-3 s.h.

Portuguese

- 38:109-110 Modern Brazilian Fiction I: Short Story 2 s.h.
- 38:104 Modern Brazilian Fiction II: Novel 2 s.h.
- 38:106 Brazilian Literature I 3 s.h.
- 38:108 Brazilian Literature II 3 s.h.
- 38:109 Brazilian Literature and Novel 3 s.h.
- 38:115 Brazil People and Culture (Taught in English) 3 s.h.
Political Science
36:80 Introduction to World Politics 4 a.h.

Portuguese
36:106 Basic Literature of Portuguese Expression (Same as 46:108 and 100:109.) 3 a.h.
36:116 Modern Portuguese (Taught in Spanish) 3 a.h.

Sociology
54:165 Economic and Political Development: Women’s Roles 3 a.h.

Spanish
56:4 Hispanic World I (Same as 36:4. Taught in English.) 4 a.h.
35:6 Contemporary Latin American Narrative 4 a.h.
(Same as 11:18. Taught in English.)
35:7 Hispanic World II 4 a.h.
(Same as 36:7. Taught in Spanish.)
36:100 Redskin in Hispanic Literature 3 a.h.
36:103 Contemporary Spanish American Fiction 3 a.h.
36:104 Spanish American Poetry 3 a.h.
35:105 Spanish American Drama 3 a.h.
35:107 Spanish American Literature of Fantasy 3 a.h.
35:112 Contemporary Latin American Novel and Short Story 5 a.h.
35:118 Spanish American Civilization 3 a.h.

Latin American Studies Related Courses
Anthropology
113:113 Africans in the New World 3 a.h.
113:116 Urban Anthropology 3 a.h.
113:147 Comparing Cultures 3 a.h.
113:151 Sociology of the Third World 3 a.h.
(Same as 24:151.)
113:159 Primitive Art 3 a.h.
113:192 Social Anthropology of Passanty 3 a.h.
113:164 Comparative Psychiatry 3 a.h.
113:181 Native, Ethnicity, and International Relations 3 a.h.
(Same as 46:151.)

Art and Art History
91:1 Introduction to African, Oriental, and Pre-Columbian Art 3 a.h.
1H:106 Art of Pre-Columbian America 3 a.h.

Economics
6E:125 International Economics 3 a.h.
6E:127 Natural Resources in the World Economy: Control and Conflict 3 a.h.
6E:129 Economic Development: Underdeveloped Areas 3 a.h.

Geography
44:165 World Cities 3 a.h.
44:162 The Third World 3 a.h.

Letters
Committee chair: Alan R. Nagy Faculty members: J. Dudley Andrew (Combinatory and Theoretical Literatures), Bruce D. Tuckman (Comparative Literature), Kurt F. Ingle (English-Comparative Literature), Marion E. Howes (Russian and Slavonic Literatures), Stanley H. Ely (Latin-American Literatures), Henry B. Weller (Russian), Robert V. Warner (English, Comparative Literature)

Emphasizing the entire field of literature, the bachelor’s Program in Letters provides as alternative to programs in a national language and literature. The student in Letters typically takes major courses in at least three general departments. This study of literature may be highly focused on questions of what literature is, of what it is for man to tell stories, recite poems, or write what will be read by others from the printed page. It is equally possible for students of literature to raise questions about the nature and theory of literature, or to investigate the relation of literary production and artifacts to other kinds of thought and action in culture, society, and history.

For many students, the major in Letters provides a general course of study in the humanities while allowing considerable freedom in the choice of concentration. Students looking toward teaching world literature in translation or general literary subjects and those intending to pursue graduate study in comparative or national literature may choose the B.A. in Letters. Future professionals in such fields as public health and law may find the major in Letters a satisfying concentration toward the B.A.

The B.A. program in Letters encourages the student to work closely with one or more advisors in developing an individual course of study. One student might study classical and modern drama, and literature and fiction from several countries; another might include work in film or practice printing on a hand press. The program requires that a student do work in three different national literatures or literary traditions, with some experience of historical diversity. Students doing all their reading in English must complete at least 36 semester hours of coursework in literary subjects; students who complete at least 6 semester hours of study in a foreign language in the original language are required to take 1 of at least 30 semester hours in literature for the B.A. Appropriate courses in linguistics, creative writing, translation, and interdisciplinary studies concentrating on literary materials may be included toward completion of the major.

Courses
International or Comparative Themes and Problems
50:66 Language and the Humanities 3 a.h. Introduction to the varieties of style, letters, and languages of the world, and exploration of major problems of understanding and value, much emphasis on comparative literature, and in practicing different uses of the English language. Additional courses in letters may be approved with the approval of the department. The student will write an essay on understanding and communicating across different languages and cultures.
Research Objectives
To engage in research on library problems and areas related to library service which advance both the theoretical and practical knowledge of librarianship.
To give emphasis to research which directly supports the instructional program of the School of Library Science, and which may have special relevance to library service in the state of Iowa.

Undergraduate Study
Although there is no undergraduate major in library science, junior and seniors may enroll in the introductory library science and children’s literature courses (100-level).

Master of Arts
Professional preparation for careers in all types of libraries is provided by the school’s Master of Arts program, accredited by the American Library Association.
The school also offers a nondegree graduate program for certification in school librarianship. Its graduates hold positions, in approximately equal numbers, in public, school, and academic libraries, serving in such roles as administration, bibliographers, catalogers, reference specialists, or children’s librarians.
The Master of Arts degree in library science requires 33 semester hours of graduate credit with a minimum grade point average of 2.5. In addition, the student must pass a comprehensive examination.

The program consists of a small core of required courses basic to all areas of librarianship, additional required courses in a type of library and in bibliography, and electives. The plan of study should be related to developing special competencies in a particular field of librarianship.

Basic Plan of Study
Core courses (Required of all M.A. candidates) 12 s.h.
21:151 Reference 1
21:152 Cataloging and Classification 3 s.h.
and Information Centers
Type-of-library course (one required) 3 s.h.
21:231 The Public Library 21:232 The College and University Library
21:233 School Media Center Administration
Bibliography course (one required) 3 s.h.
21:241 Bibliography of the Humanities 21:242 Bibliography of the Social Sciences
21:243 Bibliography of the Sciences
Electives 16 s.h.

Students are expected to tax their elective hours in library science courses. However, when a student has had extensive undergraduate coursework in library science, when career objectives indicate, and with the advisor’s consent, the student may take additional hours in other subject departments, especially in closely related areas such as computer science, educational media, urban and regional planning, municipal government, etc.

With the director’s approval, a student with a strong background in library science may elect to write a thesis, for which 6 semester hours of credit may be earned. However, most students are advised to undertake the nonthesis program.
The program normally requires two semesters and one summer of graduate study, or, in the case of students attending summers only, a minimum of four summer sessions.

Public Library Work
A major concern of public librarians is to design innovative service programs to reach those segments of the population now underserved, as well as to provide a full range of services to all members of

Public Service Objectives
To offer library personnel and library trustees opportunities for continuing education to advance 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 towns and surrounding areas.
To participate in professional organizations at state, regional, and national levels in the pursuit of common goals within the profession.
the community. Management skills are often needed in these positions.

Required Courses
Core courses
Bibliography course
21:321 The Public Library

Suggested Electives
21:213 Library Services to Adults
21:246 Introduction to Information Science
21:249 Research Methods
21:261 Advanced Reference
21:262 Advanced Cataloging
21:282 Practicum in Libraries
Additional bibliography courses
Courses relating to service to children and young adults:
21:125 Children’s Literature
21:126 History of Children’s Books
21:126 Literature and Storytelling for Children
21:180 Literature for Adolescents
21:334 Library Services to Children and Young Adults

School Library Work
The school media center makes a wide range of print and audiovisual materials available to students and teachers. 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 teaching program, producing new materials, offering reading guidance, and providing reference service. State certification is required for a career as a librarian in elementary and secondary schools.

Required Course
Core courses
Bibliography course
21:222 Multi-Media Concepts in Libraries
or Equivalent audiovisual course
21:213 School Media Center Administration

Suggested Electives
21:123 Children’s Literature
21:124 History of Children’s Books
21:126 Literature and Storytelling for Children
21:193 Literature for Adolescents
21:222 Multi-Media Concepts in Libraries
21:234 Library Services to Children and Young Adults
21:246 Research Methods
21:251 Advanced Reference
21:262 School Media Center Problems
21:282 Practicum in Libraries
175:281 Janitor High School and Middle School Curriculum
75:281 Secondary School Curriculum Additional courses in educational media

College and University Library Work
The academic library, whether in a community college or a university, provides services to students, faculty, and staff relating to their information, education, and research needs. Management or supervisory responsibility is often required. Special competencies may be necessary, such as a subject or language specialty or an activity specialty (classification and indexing, information systems, etc.).

Required Courses
Core courses
Bibliography course
21:232 The College and University Library

Suggested Electives
21:246 Introduction to Information Science
21:249 Research Methods
21:251 Advanced Reference
21:262 Advanced Cataloging
21:282 Government Publications
21:284 Medical Librarianship and Bibliography
21:285 Law Librarianship, Bibliography, and Research Techniques
21:282 Practicum in Libraries
Additional bibliography courses

Work in Special Libraries
Special libraries function in such settings as government agencies, industrial firms, hospitals, museums, and publishing companies. In addition to management skills, the special librarian often needs a subject specialty.

Required Courses
Core courses
Bibliography course
Type-of-library course
21:330 Special Libraries

Suggested Electives
21:246 Introduction to Information Science
21:249 Research Methods
21:251 Advanced Reference
21:262 Advanced Cataloging
175:281 Government Publications
21:284 Medical Librarianship and Bibliography
21:285 Law Librarianship, Bibliography, and Research Techniques
21:282 Practicum in Libraries

Certification in School Librarianship
Students who desire to become school librarians may fulfill certification requirements within the M.A. program, or they may pursue a nondegree certification program. The certification program, a 30-semester-hour sequence, accepts both undergraduate and graduate coursework, and does not require a foreign language for admission. The required courses and suggested electives are the same as those listed above under “School Library Work,” except that a bibliography course is not required.

The student must hold an approved teaching certificate, either at the elementary or the secondary school level. Completion of the certification program provides authorization to serve as librarian for kindergarten through grade 12.

Library Science/LIBERAL ARTS
Joint Program in Business Administration and Library Science

Today’s professional librarian faces ever-increasing demands for knowledge and expertise in the functional areas of administration and management. In addition to understanding the principles of library science, the librarian, whether in an academic or public setting, is discovering the importance of understanding and applying the principles for effective management of complex organizations. In order to offer students an opportunity to gain a solid understanding of the problem-solving techniques of each area, the College of Business Administration and the School of Library Science have developed a joint program which leads to two degrees—the Master of Business Administration (M.B.A.) and the Master of Arts (M.A.) in library science.

To enroll in the joint program the student must apply and be accepted by both Graduate Studies in Business and the School of Library Science. The joint program enables the student to apply 6 semester hours of business and 9 hours of library science electives toward both the M.B.A. and M.A.

The student must complete a minimum of 80 hours in order to receive the two degrees. Students not having previous coursework in business administration must be required to complete up to 72 semester hours of coursework in the joint program.

Facilities and Resources

Facilities for the School of Library Science in the south wing of the University’s Main Library provide well-planned facilities for the varied instructional and research activities of the school. A media lab provides equipment and space for slide-tape production, videoclip programming, super-8 film editing, filmstrip production, dry mounting, 16mm film previewing, and simple film editing. Computer facilities include an on-line lab with two CRT terminals and one printing terminal, providing access to the University’s CYBER system, national bibliographic data bases, and OCLC (a national on-line library network).

A vian system links the school with a state network of academic and public libraries, by which students provide back-up reference service to libraries throughout the state.

A departmental library contains approximately 100,000 volumes and two hundred periodical titles.

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.

In addition, students have access to a variety of libraries for clinical and laboratory purposes: the State Hospital Library in Iowa City; the Iowa City and Cedar Rapids public and school libraries; the Coe, Cornell, and Grinnell college libraries; and, by arrangement, the Herbert Hoover Presidential Library in West Branch, Iowa.

Placement

Prospective students are advised that since the job market for entry-level librarians has diminished, graduates with strong personal and academic qualifications, flexibility, and geographic mobility will be most successful in finding positions. The school provides placement assistance to its graduates seeking employment.

Admission Requirements and Procedures

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 18 semester hours of study in liberal arts and sciences;

One year of college credit in a foreign language with a grade of C or better or an equivalent level of achievement;

A combined verbal/quantitative score of 950 Graduate Record Examination (GRE) Aptitude Test.

Personal qualifications and aptitude for library work are assessed by means of letter of recommendation, 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. The applicant’s professional promises is an important consideration.

Applicants are requested to write to the School of Library Science for a preliminary information form. If the information provided on the form indicates that the applicant satisfies the basic admission requirements, the school will schedule a personal interview.

Prospective students are urged to begin application procedures early enough to complete all requirements by the deadlines given below. The applicant needs to allow more time if he or she has not already taken the GRE aptitude test.

Completed applications should be received by the school no later than March 1 for fall semester consideration. October 1 for the spring semester, or February 1 for the summer session. Receipt of the admissions committee is announced two to three weeks after each deadline. Late applications will be considered if places are still available.

Financial Assistance

The School of Library Science awards partial-fellowship scholarships, as well as quarter-time graduate assistantships. To be considered for a grant, an applicant must have at least a 3.0 undergraduate grade-point average (4.0 scale) and combined verbal/quantitative scores of 1100 on the Graduate Record Examination (GRE) Aptitude Test. Those who do not meet these requirements when entering the program may apply for financial aid after completing 12 semester hours of graduate work with a
with other languages which may or may not be historically related.

Linguistics do not attempt to learn many languages. Rather, they consider the languages of the world as data to be analyzed by common principles.

Linguistics is a science with many laboratories. One linguist's laboratory may be his or her mind and a vehil and paper. Another may work with acoustical equipment. Others read computers. Some go into exotic-related places to study, describe, and analyze little-known languages which may be in danger of extinction. Some go into their own communities to study the relationship between language variation and socioeconomic structure, or race, or sex. Still others, interested in language change, sound time studying ancient languages.

Linguistics is not limited to scientific research for its own sake. Linguists may teach English as a foreign language. They may help design school programs which are relevant for Chicano, black, and native Americans. They may help scientists to understand the language of the animals. They may help computer scientists to develop language processing. They may help linguists to preserve language and culture.

Undergraduate Program

Because language is a medium of informational, emotional, and aesthetic communication, yet can be analyzed scientifically, a major in linguistics embodies all the virtues of a liberal arts education.

High scores on verbal and quantitative aptitude tests are indicators of success in linguistics. Although few aspects of the field deal with numbers, it is very important to be able to reason logically and explicitly, and to be able to deal with formal and abstract symbols.

Depending on their vocational goals, prospective linguists may choose either to pursue their studies towards the M.A. in linguistics or towards a professional focus, or through the doctorate, or they should take a second major. Appropriate companion fields include foreign languages, English, anthropology, sociology, speech pathology, psychology, mathematics, computer science, philosophy, and elementary, secondary, and special education.

The Bachelor of Arts degree in linguistics prepares the student to do basic language analysis in syntax-semantics (sentence patterns and their relation to meanings) and phonology (sound patterns). Elective courses in a variety of sub-specialties enable each student to tailor a program to his or her own interests.

The major in linguistics requires 24 semester hours of work in the department. It includes a general introduction and courses in syntax, phonetics, phonology, methods of analysis, and language history.

Graduate Programs

Emphasis in all graduate programs is on theory and research. Students interested in research careers may take advanced courses in applied linguistics or at the graduate level, either in connection with doctoral work or as a standard option of the M.A. program.

Master of Arts

All students take a required set of core courses followed by comprehensive examinations in phonology and syntax-semantics. Students choosing to write a thesis take at least 9 semester hours of electives courses, exclusive of thesis hours, and may receive up to 6 semester hours of thesis credit (for a total of 36 semester hours).

Students choosing to take a degree without thesis must complete a focus area (consisting of 12 hours of coursework) and take at least 6 semester hours of elective courses. The major purpose of the focus area is to qualify the student for immediate career opportunities. The focus may either be planned in advance by the student (subject to departmental approval), or be one of a set of predetermined options (for example, teaching English as a foreign language).

All electives must be chosen from an approved list furnished by the department. Students should expect either to take at least 30 hours of coursework and write a thesis, or to take at least 36 hours of coursework. All students must have a minimum of 30 hours of graduate credit to receive the degree, regardless of prior preparation.

Doctor of Philosophy

The aims of the Ph.D. program are to develop graduates highly competent in theoretical linguistics, and to provide graduates with the theoretical skills necessary for understanding and exploring the close relationship between linguistics and related disciplines.

The core requirement for the program includes two upper-level syntax courses for example, Syntactic Theory and other Advanced Syntactic Theory or Advanced Syntactic Analysis) and two upper-level phonology courses for example, Phonological Theory and Advanced Phonological Theory), and at least two seminars, for a total of 12 semester hours. An approved 18-hour specialty area is also required, and students must achieve proficiency in at least two foreign languages (as defined by departmental regulations).

Comprehensive examinations cover phonological theory, syntactic theory, theory of language change (historical linguistics), sociolinguistics, and the special area. An oral defense of the dissertation and three years of residence are also required. In addition, all candidates are required to gain supervised experience in teaching and research.

Special Facilities

The Department of Linguistics has an acoustic lab consisting of a, sound spectrophor, a studio-type tape recorder, and an audiora trainer. There is also a telephone terminal connected to the University computing center.

The departmental reading room facility is to allow a close relationship between faculty and students, and a considerable influence of students on departmental affairs, and a high degree of individual instruction. A large part of the student's
education in linguistics is conducted informally through daily conversations among students and faculty members. Students and faculty members also meet in an informal colloquium to discuss research in which students and staff are engaged.

The department also has a practicum laboratory (103:107) to provide experience in teaching English as a foreign language.

Financial Aids

Teaching assistantships and research assistantships are available to qualified graduate students. Application should be made by March 1 for the following academic year. Students applying for financial aid and admission concurrently should submit their Graduate Record Examination scores.

Courses


Primarily for Undergraduates

103:106 English for Foreign Students
3 h. Weekly instruction and written English for non-native speakers of English. Prerequisite: permission of department.

103:111 Language and Society

103:160 Special Project
4 h. Independent research as a linguistic topic, directed by member of staff.

For Undergraduates and Graduates

103:105 Introduction to Linguistics

103:159 Language, Society, and Education
3 h. Basic concepts contributing to language use; development of perspectives, linguistic dimensions of educational Situations, concepts of a "standard" language, and distance of a language. Same as 103:100.

103:190 Teaching English as a Foreign Language
3 h. Basic concepts contributing to language use; development of perspectives, linguistic dimensions of educational situations, concepts of a "standard" language, and distance of a language. Same as 103:100.

103:197 Practice in Teaching English as a Foreign Language
3 h. Practical experience in teaching English as a second language, such as supervised class in teaching techniques, preparation, and evaluation of student learning. Prerequisites: 103:108 and consent of instructor.

103:192 Accurate and Accurate Phonetics
3 h. Articulatory and acoustic phonetics; articulatory practice in phonetic exercises. Prerequisites: 103:100.

103:193 Intonation and Acoustic Phonetics
3 h. Introduction to intonation in general, with emphasis on intonation in the major languages of the world. Prerequisites: 103:100.

103:194 Phonological Analysis
3 h. Solution of phonological analysis in the framework of generative theory. Prerequisites: 103:103.

103:195 Linguistic Field Methods
3 h. Gathering and correlation of language data in field: theory and practical problems, literature relating to language field surveys. Prerequisites: 103:115-116.

103:198 Language Data Processing
3 h. Introduction to computer techniques in language data processing, including the use of microcomputer and non-computer language analysis. Same as 116:111.

103:199 Language Data Processing

103:208 Historical and Comparative Linguistics
3 h. Principles of comparative analysis; general classification of languages, internal reconstruction and language typology. Prerequisites: 103:118.

103:212 Synthesis
3 h. Detailed examination of the nature of linguistic argumentation, critical and creative research. Prerequisite: 103:111.

103:213 Phonological Theory
3 h. Basic issues in phonological theory. Prerequisites: 103:112.

103:215 Introduction to Linguistics
3 h. Same as 103:110.

103:216 Introduction to Romance Linguistics
3 h. Comparative study of Romance languages. Same as 34:110.

103:218 History of the English Language
3 h. Development of English, both in the present and in the past. Prerequisites: 103:112. Same as 103:115.

103:220 Historical and Systematic English
3 h. Structure of Old English; its historical position in the Germanic languages. Same as 103:113.

103:225 History of the Chinese Languages
3 h. Same as 39:186.

103:241 The Structure of English
3 h. Detailed examination of the structure of English. Prerequisites: 103:110, 113, 118. Same as 116:141.

103:242 Rosendal German English
3 h. Modern German English as a historical, sociolinguistic, and sociocultural entity; its status and influence in the world. Prerequisites: 103:110, 113, 118.

103:257 German Romance
3 h. Structure of modern languages of the Romance family. Prerequisites: 103:110. Same as 118:103.

103:260 Introduction to Chinese Linguistics
3 h. His knowledge of Chinese required. Same as 103:198.

103:265 Phonemics in Linguistics
3 h. Designed to provide an intensive introduction to phonemic theory and methods, with emphasis on phonetically and phonologically oriented aspects of language. Prerequisites: 103:110, 113, 118. Same as 116:150.

103:267 Modern Languages and Cultures
3 h. Languages in relation to organization, education, and change in society and culture. Prerequisites: 103:112 and 113:178 or 103:110, 113, 118, or consent of instructor. Same as 117:121.

103:268 Linguistic Anthropology
3 h. Structure of modern languages, emphasizing the techniques for collecting and analyzing linguistic data; the historical and geographical relationships among world languages. Same as 117:171.

103:270 Psycholinguistic Theory
3 h. Theoretical and empirical investigations of the social psychology of language, language acquisition, biofeedback, and other psychological and neurological processes underlying language production. Same as 31:104.

103:272 Psycholinguistics

103:273 Psycholinguistics
3 h. Same as 31:110.

103:274 Language and Cognition
3 h. Studies in the psychology of language, neurophysiology, and lexical processes. Prerequisites: 103:198 and 103:265. Same as 31:115.

103:276 Language and Cognition
3 h. Same as 31:110.

103:277 Communicative Processes and the Language Mind
3 h. Neurophysiology and neuropsychology as they relate to communication processes; theory and practice of the role of language in thought processes, and neural determination. Same as 31:116.

103:278 Social and Cultural
discussion of the origins and development of language and its role in society. Prerequisites: 103:110 and 113:178.

103:287 Language and Cognition
3 h. Studies in the psychology of language, neurophysiology, and lexical processes. Prerequisites: 103:198 and 103:265. Same as 31:115.

103:288 Language and Cognition
3 h. Same as 31:110.

103:289 Linguistic Approaches: Conceptual and Empirical
3 h. Same as 103:285.

103:290 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:291 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:292 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:293 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:294 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:295 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:296 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:297 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:298 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:299 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:300 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:301 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:302 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:303 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:304 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:305 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.

103:306 Linguistic Thought: Conceptual and Empirical
3 h. Same as 103:285.
Natural, social sciences 12 s.h.
Philosophy, religion, history 12 s.h.
Literature beyond core requirements 12 s.h.
Fine arts (excluding studio courses) 3 s.h.

Foreign language: one semester beyond second year Foreign literature courses in the original language may also be used to satisfy the requirement in literature 3 s.h.

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.

Courses
22.131 The Pursuit of Happiness 3 s.h.
Treatments of individual happiness in various types of human experience by Aristotle, Plato, Qantai, Montaigne, Voltaire, Rousseau, Smith, etc.

22.132 Love in the Western World 3 s.h.
Western art and myth, and variations of love as they appear in literature, music, art, philosophy, psychology, and religion.

22.133 Myth and Reason 3 s.h.
Intrareligious myths and reason as aesthetic patterns in Western thought; reading from Sophocles, Plato, Aristotle, Machiavelli, Montaigne, Locke, Gibbon, Marx, etc.

22.134 The Good Society 3 s.h.
Man's life in society and the possibilities of man's life in society, as seen in works by Plato, Aristotle, Machiavelli, Montaigne, Locke, Gibbon, Marx, etc.

22.135 Vision in the Contemporary World 3 s.h.
Modern problems in definition and choice of values, discussion through writings of contemporary artists in the humanities, 3 s.h.

22.136 New York City: Contemporary in Contemporary Society 3 s.h.

22.140 Human Nature and the Idea of Science 3 s.h.
Reconsideration of scientific to fundamental, social, and religious thought. Terms: Fall, Spring

22.141 Form and Ideals in the Arts 3 s.h.
Intrapairing between art forms and other cultural patterns, institutions, and rituals; close examination of important theoretical writings, especially of music, and graphic art.

22.148 World Culture 3 s.h.
Literary and social manifestations of modern civilizations

22.170 Biblical Interpretation in Orients and Opeas 3 s.h.
Same as 22.173, 22.171

Division of Mathematical Sciences

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

Bachelor of Arts
In addition to at least one year of calculus (either 22M:25-26 Calculus II or 22M:35-36 Engineering Calculus II), the student must take at least seven additional approved courses, each carrying at least 3 semester hours of credit. Except for students electing the applied mathematical sciences option, these seven courses must be from the division, and (except for students seeking a secondary teaching certification) must include either two of the courses in the first group below, or one of the combinations in the second group.

Either two from this group:
22C:116 Operating System Principles 3 s.h.
22C:122 Advanced Computer Organization and Architecture 3 s.h.
22C:123 Programming Language Foundations 3 s.h.
22C:155 Introduction to Computational Theory 3 s.h.
22C:168 Artificial Intelligence I 3 s.h.
22M:100 Introduction to Ordinary Differential Equations 3 s.h.
22M:101 Introduction to Partial Differential Equations 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.

Or one combination from this group:
22M:105-104 Foundations of Mathematics I-II 6 s.h.
22C:110-111 Elementary Topology I-II 6 s.h.
22M:115-116 Introduction to Analysis I-II 6 s.h.
22M:120-121 Abstract Algebra I-II 6 s.h.
22M:130-131 Theoretical Mechanics I-II 6 s.h.

Suggested Programs

General Program
Unless a student has a strong interest in a special area in mathematics, a general program is suggested. This type of program should include 22C:7 Introduction to Computing with FORTRAN, preferably along with calculus during the freshman year. The
Program should also include a course such as 22M:50 Elements of Group Theory, 22M:55 Fundamental Properties of Spaces and Functions, or 22M:103 Foundations of Mathematics I, and it should include at least a semester's work in statistics and probability.

The student should take additional work, in particular the required 100-level courses, in whatever area of mathematical sciences is of most interest to the student. Students contemplating employment in government or industry upon completion of the B.A. degree should consider 22C:17 Programming with PL/I and courses in numerical analysis, applied statistics, and operations research.

Actuarial Science


Additional courses of direct professional interest to actuaries include 22S:183 Demography and Life Table Construction, 22S:184 Risk Theory, and 22S:185 Theory of Pension Funding. Students are encouraged to take at least one course in computer science and a substantial program of courses from the College of Business Administration. If a student is unable to complete such a program as an undergraduate, he or she may be advised to take a year of graduate work.

Applied Mathematics


Other general courses which may be of interest are 22M:50 Elements of Group Theory, 22M:105 Analysis for Applications, 22M:116 Introduction to Analysis II, 22M:126 Elementary Theory of Numbers, and 22M:150 Metric Theory. Students in applied mathematics should be familiar with computer programming (22C:7 Introduction to Computing with FORTRAN can be taken early along with calculus) and with the basic ideas of probability and statistics (the courses 22S:183 Introduction to Probability and 22S:154 Introduction to Mathematical Statistics I or 22S:120 Probability and Statistics are appropriate). To acquire an understanding of how mathematics is used in other areas, it is recommended that a student take a set of courses involving mathematics in a significant way, outside the Division of Mathematical Sciences. Students who plan to do graduate work in applied mathematics should take 22M:115 Introduction to Analysis I.

Mathematics Education

Mathematics courses required for students in mathematics education are 22M:25-26 Calculus I-II, 22M:27 Introduction to Linear Algebra, 22M:50 Elements of Group Theory, 22M:55 Fundamental Properties of Spaces and Functions, and 22M:70 Euclidean Plane Geometry. The student may substitute one of these four courses in the same subject area. The student must take 22M:55 before taking 22S:137, a course required for teaching certification in mathematics (see the "College of Education" section of the Catalog for certification requirements).


Pure Mathematics

Students interested in this area of mathematics should take two of these courses: 22M:100-101 Abstract Algebra I-II, 22M:116-116 Introduction to Analysis I-II, 22M:103-104 Foundations of Mathematics I-II and 22M:110-111 Elementary Topology I-II; and at least two of these courses will satisfy this area, for example, 22S:7 Introduction to Computing with FORTRAN, 22C:7 Introduction to Programming with PL/I, 22M:100 Introduction to Ordinary Differential Equations, 22M:118 Complex Variables, 22S:153 Introduction to Probability, or 22S:154 Introduction to Mathematical Statistics I.

Probability and Statistics

Experiments or 22S:182 Regression Analysis.

Students should also select one or two courses in computer science from 22C:7
Introduction to Computing with FORTRAN, 22C:17 Programming with PL/1, or 22C:18 Assembly Language Programming; and one or two courses in
decimal analysis from 22M:55
Fundamental Properties of Spaces and Functions, 22M:105 Analysis for
Applications, and 22M:115 Introduction to Analysis I. Substantial work in one of
the biological, social, physical, or
engineering sciences is also highly
recommended.

Further courses in probability and
statistics may be selected from courses in the Department of Statistics numbered 100 and above, excluding 22S:102.

Additional courses may be selected from 22M:50 Elements of Group Theory, 22M:110 Elementary Topology I, 22M:116 Introduction to Analysis II, 22M:118 Complex Variables, 22M:150
Matrix Theory, 22M:170 Numerical
Analysis: Nonlinear Equations and Approximation Theory, 598:141
Operations Research I, and 598:148
Digital Systems Simulation I.

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,
economics, linguistics, and engineering.
The student electing this option must
include the following among the seven
courses numbered 100 or above taken before the first
year of calculus:

Either 22M:27 Introduction to Linear Algebra or 22M:38 Differential Equations and Linear Algebra;

At least three Division of
Mathematical Sciences courses numbered 22M:50 or above (excluding
22M:50-81 and including at least one
courses numbered 100 or above) or
22S:103; and

At least three additional quantitative courses from one department outside the
division, or, at the adviser’s discretion, from two closely related departments.

In addition to the above, the Bachelor of
Science degree requires two one-
semester courses from the division,
each carrying at least 2 semester hours of
credit.

A student taking this option must include
an area of concentration in his or her
program, and must acquire some
experience in the use of the computer.

Students electing this option are
assigned specially-designated program
advisers.

Transfer Students

Undergraduate transfer students in
mathematics must earn at least 6 semester hours of credit in Division of
Mathematical Sciences courses beyond the
first year of calculus or 22C:18
Introduction to Programming with PL/1.

Minor

Courses designated as upper-level for
the purpose of satisfying minor field
requirements in mathematical sciences are 22C:21 Data Structures and above
(excluding courses not open to computer
science majors for degree credit);
22M:26 Calculus III, 22M:50 Elements of
Group Theory and above (excluding
22M:50 Theory of Arithmetic and 22M:81
Geometry for Elementary Teachers); and
22S:103 Introduction to the Design of
Sample Surveys and above.

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 adviser
and with the associate dean of the
College of Business Administration prior
to the senior year concerning business
courses which should be included in the
undergraduate program.

Applied Mathematical
Science

Program chair: Kendall E. Atkinson.

Financial mathematics, operations research, Edward
Haug (Dissertation Engineering), Herbert Heronoff
(Mathematics), William Hsu (Physics), Hatt
Longnecker (Statistics Engineering), Paul Weidman
(Mathematics),

Degree offered: Ph.D.

Applied mathematical scientists
formulate scientific concepts and
problems in mathematical terms; solve
the resultant mathematical problems;
discuss, interpret, and evaluate the
solutions; explore new ideas for and
areas of mathematical application; and
develop mathematical theories in areas
which have not hitherto been subjected
to systematic mathematical treatment.

Career opportunities include faculty
positions in colleges and universities,
research positions in industrial and
governmental laboratories, professional
consulting positions, and software
computer consulting.

The program in applied mathematical science 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 basic command of advanced
mathematics, at least one science
(biological, biological, engineering,
physical, or medical), and the methods
of applied mathematics. For his or her
thesis research, the student is expected
to identify a significant problem within
his or her science, develop an
appropriate mathematical model for that
problem, test the model, and develop
improvements if necessary.

Students may enter the program with
either a bachelor's or a master's
degree. Applicants are expected to
have an excellent background in science
and mathematics, together with a desire
to apply mathematics to the solution of
relevant scientific questions.

When a student enters the program, he
or she and the program faculty plan a
course of study to give the student a
basic core of knowledge for work in
applied mathematics, and the necessary
background knowledge in the area of
science in which the student will do his or her thesis research. A comprehensive examination over this coursework will be given after approximately two or three years in the program. Following that, the student will complete a research thesis on a mathematical topic from his or her area of scientific interest.

Fellowships, graduate tuition scholarships, and some research and teaching assistantships are available to qualified applicants. Applications for thesis assistantships should be received prior to March 1 for the fall semester. For application forms and further information about the academic program, write to the Chairman, Program in Applied Mathematical Sciences, Graduate College, The University of Iowa, Iowa City, Iowa 52242.

Courses

Computer Science

Department chair: Theodore J. Sapirstein
Faculty: professor Donald L. Dyck, Arthur C. Fless
associate professors Donald A. Knox, Robert J. Ervin, K.V. Subrahmanyan, Hajo A. Almen
Teaching faculty: Theodore J. Sapirstein, associate professor Ari Aravov, Edmond S. Ford, Douglas E. Jones, Chong-yung C. Martin
Secretary William F. Caspar
Degree offered B.A., B.S., M.S., Ph.D.

Bachelor of Arts

Undergraduate students majoring in computer science need a strong background in mathematics and in programming languages and computer systems. For the B.A. degree, these computer science core courses are required:

22C:21 Data Structures 3 s.h.
22C:23 Programming Language Concepts 3 s.h.
22C:31 Digital Systems and Computers 3 s.h.
22C:32 Introduction to Systems Software 3 s.h.
and either
22C:50 Discrete Structures 3 s.h.
or
22C:55 Elementary Numerical Analysis 3 s.h.
Total 37 s.h.

All students are urged to take both 22C:50 and 22C:55. Students who plan to go on to graduate work are urged to take 22C:50 and either 22C:55 or 22M:170.

Bachelor of Science

For the B.S. degree, the student must take two additional courses (each having at least 3 semester hours' credit) in the Division of Mathematical Sciences. The Undergraduate Handbook, available at the Division of Mathematical Sciences office, includes suggested elective programs, information concerning credit by examination for the computer science core requirements, and other information.

Minor

For a minor in computer science, a student must complete 16 semester hours in computer science courses, including 12 semester hours taken from among:

22C:21 Data Structures 3 s.h.
22C:23 Programming Language Concepts 3 s.h.
22C:31 Digital Systems and Computers 3 s.h.
22C:36 Introduction to Systems Software 3 s.h.
22C:50 Discrete Structures 3 s.h.
or
22C:55 Elementary Numerical Analysis 3 s.h.
Any course numbered above 22C:114

Master of Science

A candidate for the M.S. degree in computer science must have completed the following courses or have acquired equivalent proficiency:

22C:116 Operating System Principles 3 s.h.
22C:122 Advanced Computer Organization and Architecture 3 s.h.
22C:125 Programming Language Foundations 3 s.h.
22C:136 introduction to Computation Theory 3 s.h.

A 200-level 22C course 3 s.h.
Another 22C course selected from:
22C:127, 22C:144, 22C:145, 22C:153, 22C:175, or any 200-level course 3 s.h.
Mathematics and/or statistics courses 6 s.h.
Additional approved courses 6 s.h.
Total 30 s.h.

Recommended mathematics, statistics, and additional courses depend upon the student's career objectives.

The student who intends to pursue applied computer science might profitably elect courses from:
22M:160 Matrix Theory 3 s.h.
22M:162 Theory of Graphs 3 s.h.
22M:170 Numerical Analysis: Nonlinear Equations and Approximation Theory 3 s.h.
22M:174 Number Theory I 3 s.h.
22M:177 Introduction to Linear Algebra 3 s.h.
22M:180 Probability and Statistics I 3 s.h.
22M:181 Probability and Statistics II 3 s.h.
22M:182 Probability and Statistics III 3 s.h.
22M:184 Introduction to Probability 3 s.h.
22M:186 Analysis and Design of Experiments 3 s.h.

Courses in business administration or industrial engineering.

Any M.S. candidate may elect to write a thesis, and with the advisor's consent may complete at least 30 semester hours of credit toward the minimum total of 30 semester hours of credit required for the M.S. degree.

The M.S. final examination consists of either an oral defense of the thesis or a written examination covering 22C:116 Operating System Principles, 22C:122 Advanced Computer Organization and Architecture, 22C:125 Programming Language Foundations, and 22C:126 Introduction to Computation Theory. The written examination attempts to contrast
the interfaces between these four courses as well as the content of the separate courses.

Students should consult the Graduate Handbook for further information.

It is strongly recommended that the applicant for admission to the M.S. program in computer science have a B.A. or B.S. in computer science, mathematics, engineering, or physical science. A student whose undergraduate program does not include equivalents of the courses required in The University of Iowa's computer science undergraduate curriculum is expected to complete these courses prior to admission to graduate courses.

Doctor of Philosophy

Doctoral students are expected to complete 80 to 90 semester hours of graduate work, including a thesis. The student need not have a master's degree when beginning the Ph.D. program, and need not acquire one. Usually, however, the Ph.D. student acquires a master's degree either in computer science or in some other mathematical or physical science, during his or her course of study. Every Ph.D. candidate in computer science is expected to be knowledgeable in the following four categories:

- Programming concepts, including programming, programming languages, design of algorithms, simulation, artificial intelligence, and numerical analysis;
- Theory of computation, including automata theory, computability and formal languages, and analysis of algorithms;
- Mathematical foundations, including set theory, algebra, analysis, logic, and graph theory; and
- Computer systems, including operating systems, computer architecture and logical design, and database systems.

Although the plan of study for each student will be drawn up by the student and his or her committee to fit any special needs, every student is expected to complete approximately half of the coursework toward the Ph.D. in the first two categories above.

The student must complete three courses with grades of A or B, at least one of which must be at the 800 (advanced) level, in each of two areas.

One area must be selected from:

- Algebra
- Analysis
- Logic and set theory
- Statistics and probability
- Numerical analysis

The second area may be selected from the above, or from:

- Electrical engineering
- Operations research
- Business administration
- Linguistics
- Other related areas as approved by the department.

If the student selects statistics and probability as one of the areas, the advanced course may be chosen at the 100 level.

A student is admitted to candidacy for the Ph.D. degree in computer science only after completing the comprehensive examination. In addition, he or she must be recommended by a member of the computer science faculty.

All examinations are described in the Graduate Student's Handbook.

Graduate Service Courses

"Competence and experience in the use of a digital computer in problem solving is useful for and often prerequisite to advanced study and research in many disciplines. For most students, the two-semester sequence 292:108 Introduction to Programming with PL/1 and 292:107 Programming with PL/1 is recommended. Students in fields in which other programming languages are heavily used may find 292:100 Introduction to Computing with FORTRAN, 292:105 Assembly Language Programming, or 292:106 Programming with COBOL more appropriate. The one-semester PL/1 course 292:110 Computing with PL/1 is recommended only for students with considerable programming experience using other languages."

Courses

Primarily for Undergraduates

292:00 Computer Education Tilting Appartment

292:10 Survey of Computing

292:11 Introduction to Computing with FORTRAN

292:12 Computer Programming with COBOL

292:13 Introduction to Programming with PL/1

292:14 Introduction to Programming with PL/1

292:15 Introduction to Programming with PL/1

292:16 Introduction to Programming with PL/1

292:17 Introduction to Programming with PL/1

292:18 Assembly Language Programming

292:19 Data Structure

292:20 Data Structure
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Mathematics

Department chair: Robert H. Gower

Undergraduate Programs

See "Division of Mathematical Sciences" in this section of the Catalog.

Graduate Programs

Master of Science

The M.S. programs include one intended primarily for secondary school teachers (I), one intended for students planning to work in industry or government (II), an applied mathematics program (III), and a program designed for students seeking the Ph.D. degree in other disciplines requiring considerable mathematical knowledge (IV). Each student must take comprehensive examinations over the material in the required courses. The student may choose other courses from any of the departments in the Division of Mathematical Sciences or from outside the division, with his or her advisor's consent. For the purpose of the graduate committee, a candidate in this program must satisfy an appropriate part of the Ph.D. comprehensive examination for part of the master's examination.

The M.S. Programs

Program I

This program is designed for secondary school teachers. Students in this program must take two courses, including either 22M:118 or 22M:211 and 22M:212 or 22M:206, from each of the following two groups, and must also take two mathematics education courses:

- 22M:115-116 Introduction to Analysis I-II
- 211 Analysis I-II
- 22M:120-121 Abstract Algebra I-II
- 206 Introduction to Algebra I-II

The program requires a minimum of 30 semester hours of graduate credit, including at least 24 semester hours in the following:

- Any Department of Mathematics course numbered 100 or above, except 22M:105 Application for Analysis
- 22C:123 Programming Language Foundations
- 22C:135 Introduction to Computation Theory
- 22C:145 Artificial Intelligence
- Any 200-level course in computer science

Program II

Students in this program must meet the same basic course requirements as for program I, excepting the mathematics education course requirement.
be in courses numbered 225:103 and above.

**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 recommendation is usually based upon an oral defense of the thesis, although it may be based upon a two-hour 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 may earn 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)

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:157 Introduction to Mathematical Statistics II
225:158 Introduction to Mathematical Statistics III
225:159 Introduction to Mathematical Statistics IV
225:160 Actuarial Principles of Life Insurance
225:161 Actuarial Theory I-II
225:162 Actuarial Theory III-IV
225:163 Numerical Analysis for Actuaries
225:297 Seminar: Actuarial Theory

At least three courses from:
225:183 Demography and Life Table Construction
225:185 Theory of Pension Funding
226:141 Operations Research II

Students must take at least one course from outside the Division of Mathematical Sciences, preferably from the College of Business Administration. The 225:153-154 requirement will be waived only if the student has passed Part Two of the Examinations of Society of Actuaries.

**Theoretical Statistics and Probability**

(with or without thesis)

225:116 Introduction to Analysis I
225:153 Introduction to Probability
225:154-156 Introduction to Mathematical Statistics I-II
225:157 Introduction to Stochastic Processes

At least two of these:
225:172 Topics in Statistics
225:230 Introduction to the Theory of Nonparametric Statistics
254:101 Theory of Statistics I-II
254:252 Linear Models
254:261 Multivariate Analysis
254:264-266 Theory of Probability I-II

**Applied Statistics**

(without thesis)

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:156 Analysis and Design of Experiments
225:173 Statistical Computation and Consulting

At least two of the following:
225:156 Applied Time Series Analysis
225:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:166 Analysis and Design of Experiments II

At least two of these:
225:103 Introduction to the Design of Sample Surveys
225:153 Quality Control, Reliability, and Engineering Statistics
225:158 Bayesian Statistics I
225:159 Introduction to Mathematical Statistics II
225:160 Applied Time Series Analysis
225:180 Applied Statistical Decision Theory
226:161 Application of Multivariate Statistical Techniques
225:162 Regression Analysis
225:230 Introduction to the Theory of Nonparametric Statistics
225:236 Bayesian Statistics II
225:256 Linear Models
225:260 Multivariate Analysis
225:270 Numerical Analysis: Nonlinear Equations and Approximation Theory

The remainder of the program will consist of selections from the above lists or other courses approved by the adviser.

Experience in a computer language (PL/1, FORTRAN, or BASIC) 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. A program oriented toward biostatistics would include:

225:103 Introduction to the Design of Sample Surveys
225:181 Application of Multivariate Statistical Techniques
225:182 Regression Analysis and electives chosen from among
65:150 Principles of Epidemiology
65:116 Biostatistical Methods
65:101 Dynamics of Health
65:102 Man and the Environment
65:255 Chronic Disease Epidemiology

Students interested in operations research could choose electives from among:
225:156 Introduction to Mathematical Statistics III
225:160 Applied Statistical Decision Theory
225:180 Introduction to Stochastic Processes
506:141 Operations Research II
506:143 Production—Inventory Models
506:145 Quantitative Investigation
506:149 Digital Systems Simulation I
506:249 Digital Systems Simulation II
506:242-243 Mathematical Programming I-II
506:245 Stochastic Service Systems
506:245 Integer Programming and Network Flows

Programs oriented toward other applied areas are also possible.

For a general program in applied statistics (without an area of application), most electives would be chosen in the Department of Statistics. The student should work closely with his or her adviser in developing a program of study tailored to the student's specific interests. If the student's interest is in a particular applications area is strong, a program in another department may be
Ordinary involving 3 semester hours of 225:191 Individual Study for two semesters, 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.

Doctor of Philosophy

To satisfy the course requirements for a Ph.D. in statistics, a student must successfully complete:

225:153 Introduction to Probability
225:154 Introduction to Mathematical Statistics I
225:155 Analysis and Design of Experiments
225:181 Application of Multivariate Statistical Techniques
225:182 Regression Analysis
225:183 Analysis and Design of Experiments

At least two of these:

225:103 Introduction to the Design of Sample Surveys
225:133 Quality Control, Reliability, and Engineering Statistics
225:158 Bayesian Statistics I
225:159 Introduction to Statistical Analysis
225:184 Applied Time Series Analysis
225:185 Analysis and Design of Experiments
225:186 Applied Decision Theory
225:181 Application of Multivariate Statistical Techniques
225:182 Regression Analysis
225:173 Statistical Computation and Consulting
225:230 Introduction to the Theory of Nonparametric Statistics
225:254 Bayesian Statistics II
225:255 Linear Models
225:256 Multivariate Analysis
225:170 Numerical Analysis: Nonlinear Equations and Approximation Theory

At least five of the following:

225:220 Analysis of Categorical Data
225:230 Introduction to the Theory of Nonparametric Statistics
225:255 Linear Models
225:256 Multivariate Analysis
225:264-265 Theory of Probability I-II

It is recommended that students take 225:173, for at least two hours' credit, in one of the following:

In addition, each semester a graduate student is registered for six or more credit hours, the student’s registration must include at least one course of at least two hours’ credit offered by the Department of Statistics, other than 225:191 Individual Study. 225:187 Readings in Statistics and/or Actuarial Science, or 225:299 Reading Research.

During the graduate program, students may wish to take coursework or seminars in other departments for the achievement of certain auxiliary goals of the doctoral degree in statistics—to relate his or her area of specialization to other fields of knowledge, to acquire the ability to use electronic digital computer equipment, or to learn the language skills needed to read foreign scientific journals and be able to respond in personal contacts with foreign statisticians.

Each student is required to include in his or her program a component which involves experience in either teaching or statistical consulting.

Students opting to request financial assistance for the third year must have passed the qualifying examination no later than the spring semester of the second year.

The qualifying examination covers topics such as those studied in 225:153 Introduction to Probability, 225:154-155 Introduction to Mathematical Statistics I-II, and 225:156 Analysis and Design of Experiments. The examination may be used in lieu of the master’s written examination. Students who are unsuccessful in their first attempt may repeat the qualifying examination one time.

The student requests a comprehensive examination after completing one of the coursework in his or her approved plan of study, typically near the end of the third year.

The student must achieve at least a 3.26 grade-point average on completed course 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 provides assistance to members of the University...
Honors Programs

Open to seniors with a grade-point average of at least 3.0 overall and a 3.2 in microbiology courses, the honors program in microbiology involves taking 20 semester hours of coursework in microbiology, including 8 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. There is also an honors examination. A student successfully completing these requirements receives 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 Michael J. Barlowe
Faculty: professors Michael J. Nunnally (Incoming Colonel)
                           Jeffery E. Peiffer (Operations)
                           Robert G. Smith (Weather)

The Department of Military Science is the academic unit administering the Army Reserve Officers Training Corps (ROTC) program at The University of Iowa. Participation in the program is voluntary. Courses in the program carry credit toward a degree.

The ROTC Basic Course for freshmen and sophomore provides basic military instruction in the fundamentals of leadership and management plus an introduction to the military role in American society and current military organization and capabilities.

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. Military history is highlighted in tracing the development of military priorities and doctrine utilized in modern military operations and organizations. Practical instruction in developing individual leadership skills is emphasized. Between the junior and senior years, students attend a two-week, paid, advanced training camp at Fort Lewis, Washington. 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 Advanced Course receive a commission as a second lieutenant in the U.S. Army and serve either on active duty or with the National Guard or U.S. Army Reserve near Fort Rimes. Those choosing active duty serve a minimum of three years.

Students who have not taken the basic course may qualify for the advanced course by attending a basic camp during summer, all expenses paid, or by participating in an on-campus summer program. In addition, students may qualify for the advanced course by taking a compression course approved by the Department during the spring semester.

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 and 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 three and one-half years, with departmental approval.

Graduate School

Students commissioned as lieutenants upon graduation from The University of Iowa may apply for a delay of entry on active duty to attend graduate school. No additional time is required on active duty for such delays. Delays prior to three years to attend medical, dental, and law schools are normally accepted.

Special Programs

The Páreng Rifes and 16/168 Berets are fraternal organizations engaging in intercollegiate military skills competition and service activities. The Cordellia is an auxiliary to Páreng Rifes and members participate with cadets in many activities. The department also sponsors a small-boat rifle team that takes part in national competition. Cadets compete for individual and national awards for leadership, academic achievement, athletics, and military proficiency. The department sponsors military-oriented ceremonial and social activities throughout the year, including the annual Military Ball and an awards ceremony.

Special Facilities

The department uses several areas near Iowa City for practical field problems and military skills instruction. It uses a variety of military equipment, such as helicopters and field kitchens, in practical leadership exercises and in support of Páreng Rifes. Cadets visit Rock Island Arsenal, Rock Island Corps of Engineers District, and Camp Dodge, near Des Moines, to observe army operations and review equipment. Junior-year cadets also use the Camp Dodge leadership reaction course, orienteering course, and rappelling facilities.

Financial Aid

Reserve Officers Training Corps scholarships providing tuition, books, laboratory fees, and a $100-per-month, tax-free subsistence allowance, are available to high school seniors and students enrolled in military science courses. Scholarship students incur minimum service obligation of four years. All cadets in the advanced course receive a $100-per-month, tax-free subsistence allowance. Cadets attending summer camps are paid while there and receive travel allowances.
Courses

231:10 Administrative Management
231:15 Technological Leadership and Engineering

Museum Training

Department chair and professor: George D. Schroeder
Professor: Blanchard G. Bender, Jr.
Instructor: Joseph D. Weller

The department offers courses which provide a fundamental background in the historical foundations of science museums, exhibit theory and design, preparation, techniques, and general museum operational procedures.

Courses have been offered continuously since 1910; the museum instructional program at the University of Iowa is the oldest of more than 75 university- and college-based curricula in the United States.

The museum is expanding, and graduates of the University occupy positions of responsibility as directors, curators, and exhibit specialists in museums throughout the United States and Canada.

A major in one of the natural sciences (biology, ecology, geology, or paleontology), anthropology, or general science is recommended for students preparing for museum careers. Course offers are made during the annual eight-week summer session as well as during the regular academic year. These elective college courses count as credit toward the B.A. or B.S. degree.

For graduate work, museum courses may be credited as a minor field, with concentration in anthropology or science education, or a Ph.D. degree in science education. Requests regarding program details should be directed to the appropriate public department.

Courses presented in the department are of value not only to those intending to pursue careers in science museums, but also as supplemental instruction to students in the arts and humanities with specialized interests. Advanced museum students are afforded the opportunity to gain practical work experience by participating directly in the University of Iowa Museum of Natural History exhibit program and through formal internships with other museums.

Courses

All registration by consent of instructor.

24:10 Museum Techniques

Gathering, preparing, and exhibiting biological materials for museum display, teaching, or research use; cataloging and specimen data retrieval.

24:12 Museum Technical Art

Conservation or museum technician; may be taken as independent study.

24:14 Museum Accessory Work

Technique used in preparation of classroom teaching materials and museum exhibits, including preparation of supportive materials for an exhibit according to professional and technical standards; may be taken as independent study.

24:15 Museum Accessory Work

Continuation of 24:10, but may be taken as independent study.

24:16 Museum Accessory Work

Continuation of 24:10, but may be taken as independent study.

24:18 Principles of Exhibit Theory and Design

Direct study presentation of conservation and design considerations employed in standard and recent techniques, access for visitors, group exhibitions, and field trips. Prerequisites: 24:10 and 24:10, or consent of instructor.

24:19 Principles of Exhibit Theory and Design

Continuation of 24:18; may be taken as independent study. Prerequisites: 24:10 and 24:10, or consent of instructor.

24:112 Signal Readings and Projective Science Museum

An advanced, readings in projective science - museum, completed with concurrent coordinated with exhibits program or collection of Museum of Natural History. Prerequisites: 24:10 of 24:11.

24:132 Special Readings and Projecting Science Museum

An advanced reading in projective science museum, completed with concurrent coordinated with exhibits program or collection of Museum of Natural History. Prerequisites: 24:10 of 24:11.

24:153 Museum Techniques

Practical working experience intended to broaden the skills of the museum student, and programs as a supporting and related to this experience to both the formal mission of the museum and the museum field in general. Prerequisites: permission by departmental faculty and the museum director.

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 GI Bill benefit to which they are entitled. Non-enrollment advanced course students also may participate in the Simultaneous Membership Program (SMP) with the U.S. Army Reserve or National Guard. SMP cadets earn an additional $875 monthly as officer trainees in guards and reserve units in the local area.
A primary emphasis in a fine arts community of international repute, the University of Iowa School of Music has long been recognized as one of the excellent conservatory-schools of music in the United States.

The school's on-campus enrollment of 600 students majoring in music is large enough to sustain strong programs in all areas of specialization, yet small enough to ensure the individual attention essential to each student's development.

The faculty consists of highly trained artist-teachers in each area of specialization, and facilities and residence include the Stradivari String Quartet, Iowa Woodwind Quintet, Iowa Brass Quintet, Percussion Quartet, Vocal Quartet, and the Baroque Players. Private lessons with faculty members are offered in all band and orchestral instruments, voice, piano, and organ.

At the undergraduate level, the school's curricula offer all qualified students an opportunity for the further study of music toward other professional or educational goals. The graduate curricula are designed primarily as preparation for teaching in secondary schools, colleges, and universities, and for careers in performance. The school is a charter member of the National Association of Schools of Music.
String Majors
Instruction in performance 2 a.h.
(Violin and viola majors take one year of 25/23 Cello; cello and bass majors take one year of 25/21 Violin) 25/23 Cello 2 a.h.
(Students take viola and bass; violists take viola and bass; cellists take violin and cello) 25/12 Bass Strings 1-2 a.h.
(Violists take viola; violists take viola and bass; cellists take violin and cello) 75/142 Instrumental Techniques 2 a.h.
(Compositions can be for one or two parts) 75/107 Samaritan Conducting 3 a.h.
75/105 Samaritan Conducting II 1 a.h.
75/165 String Methods and Materials 4 a.h.
75/144 Methods and Materials: Elementary School Instrumental Music 2 a.h.
75/191 Observation and Laboratory Practice in the Elementary School 6 a.h.
75/187 Seminar: Curriculum and Student Teaching 1 a.h.

Bass, Woodwind, or Percussion Majors
All bass, woodwind, and percussion majors in the music education program must participate in concert band eight semesters, and in marching band for two semesters during the first two years in residence at the University. In the marching band program, students are assigned by the director of bands to either Section I — Football Marching Band, or Section II — Marching Band Techniques. Courses required:
75/143 Instrumental Technique 2 a.h.
75/102/108 Instrumental Conducting 2 a.h.
75/107 Samaritan Conducting 3 a.h.
75/136 Technique for Band Instrument Care and Repair 1 a.h.
75/142 Band Methods and Materials 3 a.h.
75/191 Observation and Laboratory Practice in the Secondary School 6 a.h.
75/187 Seminar: Curriculum and Student Teaching 1 a.h.

Vocal and Keyboard Majors
75/147 Choral Methods and Conducting 3 a.h.
75/148 Choral Literature and Conducting 3 a.h.
25/116-118 Diction for Singers I-II 4 a.h.
75/145 Methods and Materials: Elementary School General Music 3 a.h.
75/142 Methods and Materials: Secondary School General Music 3 a.h.
75/181 Observation and Laboratory Practice in the Elementary School 8 a.h.
75/187 Seminar: Curriculum and Student Teaching 1 a.h.
Keyboard majors preparing for music teacher certification must pass the proficiency examination of 25/71-72 Group Instruction in Piano I-II; keyboard majors lacking satisfactory competence in voice also must register for 25/17 Voice I for two semesters.

Keyboard Majors — Nonvocal Area
Keyboard majors who elect to teach in the vocal area must complete the requirements in either the brass-woodwind-percussion or string areas, and pass the proficiency examination of 25/71-72 Group Instruction in Piano I-II.

Teaching Minor
A student qualifies for certification as an elementary school general music teacher by completing the approved certification program for elementary teachers and 22-23 additional hours as follows:
75/121 Basic Skills and Techniques in Music 3 a.h.
75/145 Methods and Materials: Elementary School General Music 3 a.h.
75/142 Laboratory Practice in the Elementary School 2 a.h.
Applied music 2 a.h.
Ensemble (choirs, band, or orchestra) 2 a.h.
Two of the following:
25/1 Literature and Theory I 5 a.h.
po2 Literature and Theory II 3 a.h.
95/10 Fundamentals of Music 3 a.h.
1136-40 Masterpieces of Music 8 a.h.
A student who wishes to complete an area of specialization in music without teacher certification may substitute other courses for 75/182 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 25/114 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 25/98 Recreational Music Techniques 2 a.h.
75/114 Orientation to Music Therapy 2 a.h.
75/144 Psychology of Music I 2 a.h.
75/149 Laboratory: Psychology of Music 2 a.h.
25/138 Music Therapy Techniques: Atypical Children 3 a.h.
25/135 Music Therapy Techniques: Adult Clients 3 a.h.
25/140 Internship in Music Therapy 2 a.h.

Composition/Theory Major
Students are not admitted to this program earlier than the sophomore year. Upon application for admission to the program, the candidate shall be assigned a committee of three faculty members, in consultation with whom a course of study leading to the degree shall be determined. Admission is based
honors essays, research papers, editings, translations, etc.

A combination of at least two of these types of projects is required. None of the projects may duplicate projects assigned in other courses or required for graduation, such as 25:144 Senior Recital.

Honors students in music are encouraged to take graduate-level courses. Advanced coursework in music history, music theory, and languages in particularly recommended. An honors committee of at least three members is appointed by the honors sponsor 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 (harmony, ear training, forms, and counterpoint), and history and literature, before his or her first registration. The advisory examination is given each session on the third day (excluding Sunday) before registration. A worksheet describing the general content of the tests may be obtained from the advisor's office. School of Music. The graduate examination is given in written and oral form and the examination requirements, see the "Graduate College" section of the Catalog.

Master of Arts

The Master of Arts with thesis is offered in the areas of performance (including conducting), composition, music theory, and music history and literature. The Master of Arts without thesis is offered in the areas of music education and instrumental or vocal pedagogy (including accompanying). Both require a minimum of 30 quarter-semester hour credits. Information about specific admission and curricular requirements for each degree is available from the School of Music.

All courses must include the requirements listed below:

General
25:321 Introduction to Graduate Study in Music

Music Theory
25:145 Counterpoint Forms or 25:147 Tonal Forms

One elective in analysis of music literature (25:146-150) or equivalent

If excused from either 25:145 or 25:147 as a result of the advisory examination, the student must take the other course and the analysis of music literature elective. If excused from both 25:145 and 25:147, the student must take only the analysis of music literature elective. Any serious music theory and ear training deficiencies revealed in the advisory examination are to be removed through 25:11 Review Theory.

Music History
25:301-302 Advanced History and Literature of Music I-II

or equivalent, or satisfactory advisory examination score.

If excused from 25:301 and/or 25:302 as a result of the advisory examination, the student should elect another course from the music history sequence (25:325-327, 25:328-331, 25:331-332, 25:332-333, or any other musicology courses.

Ensemble Participation
25:165 University Choir, Kantorei
25:191 Symphonic Choir
25:192 Orchestra
25:194 Symphony Band, Wind Ensemble, Concert Band

Keyboard majors may substitute a computer music laboratory experience for participation in a large ensemble, at their advisors' discretion. Theory, composition, musicology, and music education majors may, with their advisor's permission, substitute other ensembles. Voice majors, with their advisor's permission, may be excused from participation in large vocal ensembles during the period in which they are singing major roles in opera theater. Any requests for
Adjustment of this requirement must be submitted to a reviewing committee.

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—analyzes or research papers
Pedagogy—contact School of Music
Information about specific admission and curricular requirements for each area is available from the director's office.

Master of Fine Arts
The M.F.A. is for students of superior ability in the areas of composition, instrumental or vocal performance, conducting, and opera theater directing. It requires a minimum of 48 post-baccalaureate semester hours.

In addition to the entrance and curricular requirements for the Master of Arts degree, the student must also present at least two full-length recitals or programs (28-401 M.F.A. Thesis B, for which a maximum of eight semester hours of credit will be granted). The student must 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, including two thesis examinations, with a minimum combined total of 60 semester hours of graduate credit. (See the "Graduate College" section of the Catalog for further details.)

Doctoral Degrees
General Requirements
All doctoral study in music includes:

- Minimum course requirements fixed under the M.A. degree;
- One or more additional electives from an analytical studies sequence 25:148-152 or equivalent;
- One or more additional electives in the music history/musicology sequence indicated in the master's degree requirements;
- 25:295 Physics of Sound and Music or equivalent;
- Reading proficiency in at least one foreign language (must be completed before comprehensive examination);
- Music education students may substitute two courses in statistics for the requirement; and
- Dissertation

All doctoral students must be available for participation in a large ensemble (25:245 Opera Theater, 25:180 University Choir, Kammerchor, 25:191 Symphonic Chor, 25:192 Orchestra, 25:194 Symphony Band, Wind Ensemble, Concert Band) during each term of registration unless excused by their advisors. Keyboard majors may substitute accompaniment in place of participation in a large ensemble, at the discretion of their advisors.

Doctor of Philosophy
Areas of concentration for the Ph.D. include composition, music history and 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 audit in his or her major performance area.

Information about specific admission and curricular requirements for each area is available from the director's office.

Doctor of Musical Arts
Requirements for the D.M.A. degree in performance and pedagogy are the general doctoral requirements of the school, except that the D.M.A. dissertation consists of three full-length recitals or two recitals and a 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:

Composition—representative musical scores
Theory—analyzes or research papers
Music education—research papers
Music literature—research papers and audition
Performance (including conducting) — audition
Music history and musicology—research papers, theses.

Graduate Awards
Qualified graduate students are invited to apply for teaching and research assistantships. Inquiries should be directed to the School of Music.

Opportunities for Performance
The following organizations provide performing opportunities for qualified students:

- Camerata Singers
- Old Gold Singers
- Kantorei
- University Choir
- University Chorale, University Singers
- Opera Theater
- Collegium Musicum
- Chamber Orchestra
- Symphony Orchestra
- Symphony Band
- Wind Ensemble
- Concert Band
- Marching Band
- Jazz Band
- Percussion Ensemble
- Scottish Highlanders
Music for Nonmajors
Courses particularly recommended for students who are not majoring in music but who have an avocational interest in it include the core sequence, 11:30-40 "Great Masterpieces of Music: 25:104 Late Eighteenth- and Nineteenth-Century Composers, 25:105 Baroque and Twentieth-Century Composers," the sequence 25:101-104 World Music I-IV, for students interested in non-Western music, and 29:10 Fundamentals of Music: 25:104 Basic Skills and Techniques in Music is available for nonmajors who wish to develop elementary performance skills for personal musical growth and enjoyment. 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 a vehicle for the performance of new works. Its repertoire includes the works of little-known young composers and works using electronically produced sounds, as well as compositions by recognized modern composers.
The Center for the New Performing Arts is an interdisciplinary and linking the University's schools of Music and Art and the fine, dance, theater, and creative writing areas. The center's basic purpose is to encourage talented young artists to develop their creative talents through multimedia and interdisciplinary techniques, 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 choral and seminar rooms, the Music Building includes advanced teaching studios, voice, and practice rooms, large libraries, two electronic music laboratories, retraining and listening facilities with 50 listening posts, four large rehearsal halls, ample solo and ensemble practice facilities, professional recording facilities, a fine arts computer facility with six terminals, eight practice and recital organs, and the 725-seat Clowes Recital Hall. Hancher Auditorium seats 2,600 people for concerts, 2,450 for operas and other stage productions.

Library resources include more than 50,000 volumes of music and books, more than 2,100 seats of microfilm, a microcard file of approximately 300 titles, nearly 9,000 LP records, and 176 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 is in the Music Building. There are 24 study carrels, a microfiche room, a typing room, a seminar and large room, a large reading area, and a separate area for the Golden Board Library, one of the world's most famous collections of band music.

Courses

Courses for Undergraduates

Table: 83.1 Music and Theory I
Table: 83.2 Music and Theory II
Table: 83.3 Advanced Skills II
Table: 83.5 Advanced Skills IV
Commencement of 83:18, which is prerequisite.
Table: 83.7 April Skills II
Table: 83.9 Advanced Skills IV

History and Research

Table: 83.2 History of Music I
Table: 83.5 History of Music II

Courses for Undergraduates and Graduates

Music Education

Other music education courses are offered by the divisions of Educational and Secondary Education in the College of Education. See those sections of the catalog for listings and descriptions. Whence dual majors are indicated, students preparing for music teacher certification should register under education number.

16:27 Group Instruction in Vocal
Shaping lyricism for music majors whose principal performing medium is voice or an instrument of similar range and style. Studies development of vocal technique and singing in ensembles, and introduces students to the theories of aural perception, phonetics, and the history of music. 24:1. 3 Crs.

16:28 Group Instruction in Piano
Emphasis on sound interpretive technique for music majors whose principal performing medium is piano. 3 Crs.

16:53 Group Instruction in Voice
Focus on sound interpretive technique for music majors whose principal performing medium is voice or an instrument of similar range and style. Studies development of vocal technique and singing in ensembles, and introduces students to the theories of aural perception, phonetics, and the history of music. 24:1. 3 Crs.

17:15 Written Communication
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs. 24:1 or permission of instructor. 3 Crs.

17:16 Written Communication I
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:17 Written Communication II
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:18 Written Communication II
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:52 Vocal Skills II
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:55 Advanced Skills II
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:57 Advanced Skills III
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:58 Advanced Skills IV
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:59 Advanced Skills V
Using music in group-rehearsed setting, emphasis on musical composition and aural perception. 3 Crs.

17:99 Advanced Composition
Prerequisites: 24:9.

18:00 History of Music I
Continuation of 18:00. Students majoring in Pre-Music Education should not enroll in 18:00. 24:1. 3 Crs.

18:01 History of Music II
Prerequisites: 24:9, 18:00, and 18:01. 3 Crs.
Ensemble

No fee is charged for ensemble courses. Courses may be repeated. Prerequisite: consent of instructor.

25-35 Scottish Bagpipe Ensemble 0-1 A-H
25-45 Russian Ensemble 0-1 A-H
25-50 Violin Ensemble 0-1 A-H
25-55 Viola Ensemble 0-1 A-H
25-60 Accordion Ensemble 0-1 A-H
25-65 Saxophone Ensemble 0-1 A-H
25-70 French Horn Ensemble 0-1 A-H
25-95 Trumpet Ensemble 0-1 A-H

25-94 Opera Theater Chorus 0-1 A-H
25-95 Opera Theater Production 0-1 A-H
25-96 Opera Theater Production (Summer or spring Tough 0-1 A-H
25-97 Opera Theater Production (Summer or spring Tough 0-1 A-H
25-98 Opera Theater Production (Summer or spring Tough 0-1 A-H
25-99 Opera Theater Production (Summer or spring Tough 0-1 A-H

Undergraduate Program

The undergraduate program in philosophy provides knowledge of the basic ideas and the main developments in Western philosophy, and strengthens logical skills that are useful in a wide variety of fields. A major in philosophy can provide preparation for the advanced studies necessary for a career in religion or law, for example, as well as for a position in government or business that requires a general education and a capacity for clear and systematic thinking. Advanced degree work is necessary for a college teaching position in philosophy.

An undergraduate major is required to take at least 27 semester hours of courses numbered from 25:101 to 25:103 inclusive, including:

25:103 Introduction to Logic 0-1 A-H
25:104 Aventura Philosophy 0-1 A-H
25:105 Early Modern Philosophy 0-1 A-H

Nuclear Medicine Technology

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.
Honors Program

The department administers an honors program for undergraduate students of superior ability. The student develops an individualized honors program in consultation with his or her advisor in the department. To be eligible for the program, a student must have a cumulative grade-point average of at least 3.0. A student eligible for and interested in the program should consult with his or her advisor as early as possible, preferably in the sophomore year.

Graduate Program

The graduate program in philosophy is designed to train teachers and scholars in philosophy. The main 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. In addition, the student must pass an oral final examination. There is no foreign language requirement.

Doctor of Philosophy

Candidate for the doctoral program must be determined by a vote of the faculty, usually after the student completes three semesters of graduate study. Requirements include courses in metaphysics and epistemology, history of philosophy, logic and philosophy of science, and ethics.

In addition, the student must pass a written comprehensive examination consisting of a dissertation area examination, a special area examination, and a general examination. Before taking the comprehensive examination, the student must show competence in French, German, Greek, or Latin. The candidate usually spends the fourth year writing the doctoral dissertation.

Courses

Undergraduates Only

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>2601</td>
<td>Introduction to Philosophy</td>
<td>3.00</td>
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<tr>
<td>2602</td>
<td>Analytical and Historical Introduction</td>
<td>3.00</td>
</tr>
<tr>
<td>2603</td>
<td>Introduction to Logic</td>
<td>3.00</td>
</tr>
<tr>
<td>2604</td>
<td>Introduction to Philosophy of Science</td>
<td>3.00</td>
</tr>
<tr>
<td>2605</td>
<td>Ancient Philosophy</td>
<td>3.00</td>
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<tr>
<td>2606</td>
<td>Medieval Philosophy</td>
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</tr>
<tr>
<td>2607</td>
<td>Modern and Contemporary Philosophy</td>
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Undergraduates and Graduates

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<tr>
<td>2610</td>
<td>Philosophy of Religion</td>
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</tr>
<tr>
<td>2611</td>
<td>Philosophy of Language</td>
<td>2.00</td>
</tr>
<tr>
<td>2612</td>
<td>Philosophy of Mind</td>
<td>2.00</td>
</tr>
<tr>
<td>2613</td>
<td>Philosophy of History</td>
<td>2.00</td>
</tr>
</tbody>
</table>

Philosophy/LIBERAL ARTS 175
Physical Education—Field House

Department chair: Gene M. Asperm;
Co-programs: Robert C. Allyn, Gene M. Asperm,
David R. Asperm, James E. Blevins, Thomas M. Tysons,
Assistant professors: John J. consequence, N. Richard Hayes, David H. Leide, Jerry A. Meyers,
associate professor emeritus David Anderson,
Associate professor: Denis M. Brosseau,
Instructor: Douglas D. Lewis,
Instructor: Warren D. Bode, Theodore E. Wheelock,
Instructor: Robert A. Bouchard, Mary R. Hays, Robert K. Martin
Degree offered: B.A., B.S., M.A., Ph.D.

Undergraduate Programs

Bachelor of Science in Teaching and Coaching

The Bachelor of Science degree program in teaching and coaching prepares students for teaching physical education and related subjects in elementary and secondary schools, and for coaching athletic teams. Though the recent job shortage in teaching and coaching has led to a high level of competition among applicants for teaching positions, graduates in physical education from this department have had a high percentage of placement.

Program requirements include:
10:21-22 Physical Education 2 a.h.
27:11 Introduction to Physical Education 2 a.h.
27:21-22 Teaching of Recreational Sports I 4 a.h.
27:22 Teaching of Gymnastics 2 a.h.
27:37 Teaching of Swimming 2 a.h.
27:53 Human Anatomy 2-3 a.h.
27:58 First Aid 0 a.h.
27:57 introduction to Athletic Training 2 a.h.
27:47 Leadership Training 1 a.h.
27:103 Administration of Physical Education and Athletics 2-3 a.h.
27:105 Adapted Physical Education 2 a.h.
27:107 Biomechanics of Physical Education 3 a.h.
27:108 Psychological Perspectives in Physical Activity and Sport 3 a.h.
27:137 School Physical Education 3 a.h.
27:141 Elementary Exercise Physiology 2 a.h.
27:147 Knowledge and Performance Tests in Physical Education 2 a.h.
27:13 Introduction to Human Physiology 3 a.h.
28:14 Contemporary Issues in Health Education 3 a.h.

The program also requires one of these seven coaching courses:
27:32 Coaching of Gymnastics 2 a.h.
27:33 Coaching of Football 2 a.h.
27:34 Coaching of Baseball 2 a.h.
27:35 Coaching of Track and Field Athletics 2 a.h.
27:36 Coaching of Basketball 2 a.h.
27:38 Coaching of Competitive Swimming 2 a.h.
27:39 Coaching of Wrestling 2 a.h.

These courses are required for teaching certification in physical education:
7E:1 Growth and Motor Development 2 a.h.
7E:0 Methods and Materials in Elementary School Physical Education 2 a.h.
27:07 Teaching of Dance 2 a.h.
7P:75 Educational Psychology and Measurement 3 a.h.
7S:81 Personal Education 1-2 a.h.
7S:100 Introduction to Secondary School Teaching 2 a.h.

Other Options for the Classroom Teacher 3 a.h.
7S:167 Seminar: Curriculum and Student Teaching 3 a.h.
7S:198 Coaching Practicum 1-3 a.h.
7S:191 Observation and Laboratory Practice in the Secondary School 1 a.h.
7S:192 Laboratory Practice in Elementary School 1 a.h.

Bachelor of Science in Physical Education (Alternative Careers)

The Bachelor of Science degree program in physical education includes courses in business to prepare students
for leadership roles in sports clubs, health spas, YMCA-YWCA's, commercial recreation, and industries where physical fitness of employees is emphasized. Students are also prepared for private enterprises, such as the ownership and operation of a sporting goods store.

Program requirements include:

- 10:21-22 Physical Education Skills 8 s.h.
- (Select from activities that have commercial potential, such as aerobics, archery, badminton, billiards, bowling, canoeing, cycling, dance, jogging, new games, physical fitness, racquetball, wrestling, table tennis, tennis, or weight training, and include at least one activity that involves the use of tripping or trip planning, such as rock climbing, skiing, or sailing.)

### 27:11 Introduction to Physical Education 0 s.h.
### 27:21 Teaching of Recreational Sports 1 2 s.h.
### 27:51 Teaching of Gymnastics 2 s.h.
### 27:27 Teaching of Swimming 2 s.h.
### 27:53 Human Anatomy 3 s.h.
### 27:56 First Aid 0 s.h.
### or Red Cross Standard First Aid Card

**Certification**

- 27:57 Introduction to Athletic Training 2 s.h.
- 27:95 Special Projects 1-3 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:108 Psychological Perspectives in Physical Activity and Sport 3 s.h.
- 27:141 Elementary Exercise Physiology 2 s.h.
- College of Business Administration coursework (students confer with advisor for selection) 3-4 s.h.
- 17:41 Food, Nutrition, and Men 3 s.h.
- 72:13 Introduction to Human Physiology 4 s.h.

Two of the following:

- 104:106 Recreation Program 3 s.h.
- 104:106 Administration of Recreation 3 s.h.
- 104:130 Park and Recreation Facility Management 3 s.h.

### 104:142 Principles of Outdoor Education 3 s.h.

- 11:13 semester hours from the following:
- 27:106 Leadership Training I 1 s.h.
- 27:56 Practicum in Special Physical Education 3 s.h.
- 27:103 Administration of Physical Education and Athletics 2-3 s.h.
- 27:147 Knowledge and Performance Tests in Physical Education 2 s.h.
- 28:143 Contemporary Issues of Health Education 3 s.h.
- 72:160 Coaching for Related Professions 2-3 s.h.
- 7E:71 Growth and Motor Development 2 s.h.
- 7F:106 Child Development 2 s.h.
- 7P:133 The Adolescent and Young Adult 3 s.h.
- 31:19 Psychology in Business and Industry 3 s.h.
- 31:158 Psychology in Management 3 s.h.
- 7L:120 Drugs: Their Nature, Action, and Use 0-2 s.h.
- 6E:175 Managerial Economics 3 s.h.
- 6L:47 Introduction to Law 3 s.h.
- 19:155 Communication and Public Relations 3 s.h.

The department also recommends that the student earn certification as an exercise leader by the American College of Sports Medicine.

### Bachelor of Arts:

**Predoctoral Program**

The predoctoral Bachelor of Arts program is open only to students with superior academic records. The program is designed to prepare students for graduate work in physical education with emphasis on exercise physiology, adapted physical education, anatomy, biomechanics, or evaluation and statistics.

The curriculum consists of a core of courses in physical education, and selected courses in mathematics, the biological sciences, and the physical sciences, which are basic to advanced study in the area in which the student is interested.

Because the student need not meet certification requirements for teaching in the public schools, this curriculum offers considerable latitude in the choice of electives to fit individual interests and needs.

**Required foundation courses:**

- 4:13-14 Principles of Chemistry I-II 8 s.h.
- 4:18 Elementary Chemistry Laboratory I-II 2 s.h.
- 4:121 Organic Chemistry I 3 s.h.
- 22:1-2:1 Mathematical Techniques I-II 6 s.h.
- 22:20-20 Elementary Functions 3 s.h.
- 29:11-12 College Physics I-II 8 s.h.

**Required professional courses in physical education and related areas:**

- 27:11 Introduction to Physical Education 0 s.h.
- 27:21-22 Teaching of Recreational Sports I-II 4 s.h.
- 27:53 Human Anatomy 2-3 s.h.
- 27:63 Lab-surf Training I 1 s.h.
- 27:05 Adapted Physical Education 2 s.h.
- 7E:75 Educational Psychology and Measurement 3 s.h.
- 7E:145 Methods in Secondary Physical Education 3 s.h.
- 7L:13 Introduction to Human Physiology 4 s.h.
- 7E:202 Exercise Physiology 2 s.h.
- 7E:302 Physiology of Exercise Laboratory 2 s.h.
- 99:120 The Chemistry of Biological Materials 3 s.h.
- 99:130 Metabolism 3 s.h.

### Minor in Physical Education

The minor requires completion of 16 semester hours from the following courses:

- 27:95 Special Projects 1-3 s.h.
- 27:102 Issues and Trends in Physical Education and Athletics 2 s.h.
- 27:103 Administration of Physical Education and Athletics 3 s.h.
- 27:107 Biomechanics of Physical Education 3 s.h.
- 27:108 Psychological Perspectives in Physical Activity and Sport 3 s.h.
- 27:137 School Physical Education Programs 2 s.h.
- 27:141 Elementary Exercise Physiology 2 s.h.
- 27:48 Psychology of Sport 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 majors in subjects other than physical education but who wish to coach interscholastic athletic teams. The endorsement does not 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 2-3 s.h.
27:55 First Aid 0 s.h.
27:57 Introduction to Athletic Training 2 s.h.
Coaching of sport of interest: 27:103 Administration of Physical Education and Athletics 2-3 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:108 Psychological Perspectives in Physical Activity and Sport 3 s.h.
27:141 Elementary Exercise Physiology 2 s.h.
27:192 Observation and Laboratory Practice in the Secondary School 1 s.h.
"May be waived on the basis of appropriate coaching experience."

Endorsement for Athletic Trainers
This endorsement is provided for students who wish to be certified as trainers for athletic teams at either the secondary school level as a part of their regular teaching duties, or at the college and university level. The courses required are designed to meet the standards for certification as set by the National Athletic Trainers Association, and include:
17:41 Food, Nutrition, and Men 3 s.h.
17:42 Nutrition 3 s.h.
31:1 Elementary Psychology 4 s.h.
7P:75 Educational Psychology and Measurement 3 s.h.
72:13 Introduction to Human Physiology 4 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
27:53 Human Anatomy 2-3 s.h.
27:56 First Aid 0 s.h.
27:57 Introduction to Athletic Training 2 s.h.
27:105 Adapted Physical Education 2 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:141 Elementary Exercise Physiology 2 s.h.
27:171 Medical Supervision of Athletics 2-3 s.h.
27:182 Evaluative Techniques in Athletic Training 2 s.h.
27:193 Athlete Training Modalities and Therapeutics 3 s.h.
27:194 Laboratory Practice in Athletic Training 2 s.h.

Pre-Physical Therapy
Students who wish to be considered for admission to a physical therapy training program must complete these courses:
27:21-22 Teaching of Recreational Sports 1-8 4 s.h.
27:31 Teaching of Gymnastics 1 s.h.
27:37 Teaching of Swimming 2 s.h.
27:53 Human Anatomy 2-3 s.h.
27:55 First Aid 0 s.h.
27:57 Introduction to Athletic Training 2 s.h.
27:58-59 Practicum in Special Physical Education 6 s.h.
27:103 Administration of Physical Education and Athletics 2-3 s.h.
27:105 Adapted Physical Education 2 s.h.
27:107 Biomechanics of Physical Education 3 s.h.
27:108 Psychological Perspectives in Physical Activity and Sport 3 s.h.
27:141 Elementary Exercise Physiology 2 s.h.
27:183 Advanced Anatomy and Kinesiology 2-3, 5 s.h.
41:13-14 Principles of Chemistry 1-8 6 s.h.
41:16 Elementary Chemistry Laboratory I 2 s.h.
29:11-12 College Physics 8 s.h.
31:11 Elementary Psychology 4 s.h.
31:13 Introduction to Clinical Psychology 3 s.h.
or
31:163 Abnormal Psychology 0 s.h.

Graduate Programs
Master of Arts without Thesis
The program leading to the M.A. degree without thesis is designed as a terminal unit of advanced study for teachers of basic physical education and for athletic 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. The following undergraduate course work is required background for the nonthesis M.A. program in physical education:

- Human anatomy (3 s.h.)
- Human physiology (3 s.h.)
- Personal hygiene (or equivalent) (3 s.h.)
- Administration of physical education and athletics (2 s.h.)
- Methods in physical education (2 s.h.)
- Practicum teaching (or equivalent) (3 s.h.)
- Teaching of gymnastics (1 s.h.)
- Teaching of swimming (1 s.h.)
- Coaching (one sport) (1 s.h.)
- Electives in physical education and related areas (12 s.h.)

Total 30 s.h.

Credit may be given for experience and for competence in techniques when such competence is demonstrated by examination.

For the M.A. degree without thesis, the student must complete a minimum of 30 semester hours, at least 24 of which must be in physical education, including 27:301 Non-thesis Seminar and at least...
one course from each of these three groups:

27:107 Adapted Physical Education 2 s.h.

27:157 Measurement and Evaluation in Physical Education 3 s.h.

27:240 Professional Preparation in Physical Education 2 s.h.

27:242 Supervision of Physical Education 3 s.h.

27:237 Public School Curriculum in Physical Education 3 s.h.

27:306 Human Perceptual-Motor Performance 3-4 s.h.

or

27:148 Psychology of Sport 3 s.h.

27:157 Biomechanics of Athletics 3 s.h.

27:241 Scientific Principles of Physical Conditioning 3 s.h.

Master of Arts with Thesis

The thesis program leading to the M.A. degree in physical education is designed primarily as a first step in graduate study leading to the doctorate. Its secondary purpose is to provide advanced preparation for people who are teaching or intend to teach in undergraduate physical education programs at four-year colleges, but who do not plan to earn doctorates.

The thesis program for the M.A. degree in physical education puts particular emphasis on techniques of research on problems relating to physical education and athletics. Students receive an introduction to the nature and extent of research in various areas of physical education, and have an opportunity for some specialization in an area of particular interest to them. 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 coursework 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, physics, zoology, psychology, and philosophy are required for certain areas of specialization. The selection of each course must be approved by the professor in charge of the area of emphasis selected by the candidate, and by the M.A. advisor.

Candidates who intend to terminate their graduate study with the M.A. degree with thesis should have an undergraduate major in physical education.

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

27:240 Professional Preparation in Physical Education 2 s.h.

Two courses outside the area of specialization, from the following:

27:153 Advanced Anatomy and Kinesiology 2 s.h.

72:203 Exercise Physiology and

72:302 Physiology of Exercise Laboratory 2 s.h.

27:205 Adapted Physical Education: Special Topics and Research 3-4 s.h.

27:242 Supervision of Physical Education 3 s.h.

27:257 Biomechanics of Human Motion 3 s.h.

27:307 Advanced Measurement and Evaluation in Physical Education 3 s.h.

27:306 Human Perceptual-Motor Performance 3 s.h.

27:307 Seminar: Research in Physical Education Curriculum 3 s.h.

These tools of research:

79-143 Introduction to Statistical Methods 3 s.h.

or

83:161 Introduction to Biostatistics 3 s.h.

220:100 Introduction to Computing with FORTRAN 3 s.h.

or

220:124 Data Processing 3 s.h.

Specialization area:

27:401 Seminar in Scientific Writing 1 s.h.

27:404 Thesis M.A.

Courses approved by adviser 5-7 s.h.

Electives 4-6 s.h.

Total 38-50 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, provides 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, must write 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 for the initial presentation of the proposed problem, and participate in the final examination 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 with a comprehensive examination prepared and evaluated by faculty members of the Department of Physiology and Biophysics in 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.

79:242 Selected Applications of Statistical Techniques 3 s.h.

or

83:182 Design and Analysis of Experiments in Biomedical Sciences 3 s.h.

and

27:203 Practicum in College Teaching 1 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 TP-248 Data Processing or 222-100 Introduction to Computing with FORTRAN.

The candidate must complete a minimum of 30 semester hours of required and elective courses in his or her area of specialization. The courses required by area of specialization are:

Adapted Physical Education
72:150 Exceptional Children 3 s.h.
27:201 Research 3 s.h.
27:206 Adapted Physical Education: Special Topics and Research 4 s.h.
60:108 Human Anatomy 4 s.h.
60:109 Human Anatomy and Neuroanatomy 4 s.h.

Administration and Supervision in Physical Education
27:242 Supervision of Physical Education 3 s.h.
70:801 Foundations of School Administration 3 s.h.
27:241 Research 4 s.h.
27:210 Advanced Administration of Physical Education 2 s.h.
27:227 Advanced Administration of Athletics 2 s.h.

Anatomy
60:203 Gross Human Anatomy for Graduate Students 6 s.h.
or 60:108 Human Anatomy 4 s.h.
and 60:109 Human Anatomy and Neuroanatomy 4 s.h.

37:112 Cell, Tissue, and Organ Biology 5 s.h.
27:153 Advanced Anatomy and Kinesiology 5 s.h.
27:295 Electrophysiology in Kinesiology and Biomechanics 3 s.h.

Biomechanics
222:190 Readings in Energy Engineering 6 s.h.
(Include mechanics of fluids, transfer processes, and degradable bodies)
58:155 Intermediate Dynamics 3 s.h.
60:295 Biomechanics 3 s.h.
60:108 Human Anatomy 4 s.h.
27:202 Practicum in College Teaching 2-4 s.h.
27:295 Electrophysiology in Kinesiology and Biomechanics 3 s.h.

27:367 Research Techniques in Biomechanics 4 s.h.

Curriculum in Physical Education
70:300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
70:201 Secondary School Curriculum 3 s.h.
70:181 Introduction to Theories of Learning 3 s.h.
27:301 Research 2 s.h.
27:306 Seminar: Models and Theory in Curriculum 2 s.h.
28:243 Philosophical Aspects of Curriculum Construction 3 s.h.

Exercise Physiology
37:112 Cell, Tissue, and Organ Biology 5 s.h.
or 60:205 Microscopic Anatomy for Graduate Students 5 s.h.
37:162 Endocrinology Laboratory 2 s.h.
71:105 Pharmacology for Health Sciences Medical 5 s.h.
72:202 Exercise Physiology 2 s.h.
27:302 Physiology of Exercise Laboratory 2 s.h.
72:212 Medical Physiology 5 s.h.
72:274 Advanced Exercise Physiology Seminar 2 s.h.
27:303 Advanced Exercise Physiology Laboratory 2 s.h.
99:130 Metabolism 3 s.h.

Measurement and Evaluation
222:100 Introduction to Computing with FORTRAN 3 s.h.
70:243 Intermediate Statistical Methods 4 s.h.
70:244 Correlation Methods 3 s.h.
or 222:153 Introduction to Probability 3 s.h.
and 222:154 Introduction to Mathematical Statistics 3 s.h.
70:245 Design of Experiments 4 s.h.
28:255 Construction and Use of Evaluation Instruments 3 s.h.
70:257 Educational Measurement and Evaluation 3 s.h.
27:367 Seminar: Research in Measurement and Evaluation in Physical Education 2 s.h.

Motor Behavior and Learning
27:312 Selected Issues in Information Processing and in Motor Control of Children 3 s.h.
27:314 Seminar in Motor Behavior Research 2 s.h.
31:223 Information Processing in Psychology 3 s.h.

Therapeutics
101:214 Principles of Human Motion II 3 s.h.
20:006 Analysis of Scientific Literature 2 s.h.
101:287 Research in Therapeutics 3 s.h.
101:260 Teaching Practicum or 101:282 Clinical Educational Practicum or 101:264 Practicum in Research 3 s.h.
70:127 Designing and Developing Instructional Materials 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. Aptitude Test. To be considered for admission, the student must have an earned grade-point average of 3.0 or higher on all graduate work undertaken.

Facilities
The Recreation Building and Field House provide excellent facilities for use in the physical education student’s programs, in the undergraduate and graduate instructional programs, and for student 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 use additional special facilities in other departments on the campus.

Physical Education and Dance—Halsey Gym

Chair: N. Peggy Burke
Faculty professors: Lara. Zeno, Mary J. Allen, Peter N. Griffin, Carol L. Stearns
Graduate assistants: Alicia R. Stein, Diane E. O'Neill, Sarah A. Kruger, Michael D. Egan

Program: Bachelor of Arts or Bachelor of Science degrees

The Department of Physical Education and Dance—Halsey Gym offers bachelor's degree programs in physical education (teaching and nonscoring majors), the coaching of sports, the teaching of dance, dance performance, pre-professional therapy, 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 speciality and sports marketing, professional dance and theater, and public school teaching and coaching.

The student acquires theoretical background through anatomy, kinesiology, physiology, and health courses, with implications for the performance and teaching of movement skills.

The undergraduate programs are also designed to prepare 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 (see the "College of Education" section of the Catalog). must maintain at least a 2.2 grade point average, and must demonstrate competence for teaching and/or leadership roles.

The professional majors in physical education may lead to either the Bachelor of Arts or Bachelor of Science degrees.

The department also administers a nonprofessional major leading to a Bachelor of General Studies degree in health, physical education, and recreation. This program is designed not to provide career preparation but to give the student a broad acquaintance with material relevant to personal and family recreation and healthful living. Each B.G.S. student individually plans his or her program with an advisor, following broad guidelines and oriented to the student’s objectives.

The programs are as follows:

Physical Education and Dance

Teaching

Physical Education and Dance Core Requirements

28:16 Introduction to Human Motor Performance 1.0 s.h.
28:37 Advanced First Aid (or Red Cross certification) 2.0 s.h.
28:71 Growth and Motor Development 2.0 s.h.
28:72 Methods and Materials of Elementary School Physical Education 2.0 s.h.
28:80 Anatomy 3.0 s.h.
28:81 Kinesiology 3.0 s.h.
28:106 Physiological Implications for Teaching Physical Education 3.0 s.h.
28:114 History and Appreciation of Dance 3.0 s.h.
28:112 History and Philosophy of Physical Education 3.0 s.h.
28:142 Contemporary Issues of Health Education 3.0 s.h.

Professional Education Requirements

75:14 Educational Psychology and Measurement 3.0 s.h.
75:91 Pre-Education Practicum 2.0 s.h.
75:100 Introduction: Secondary School
Teaching 2 s.h.
75:157 Seminar: Curriculum and Student Teaching 1 s.h.
75:191 Observation and Laboratory Practice in the Secondary School 6 s.h.
75:192 Laboratory Practice in the Elementary School 6 s.h.
75:196 Coaching Practicum (optional) 1-3 s.h.

Areas of Specialization
Students must complete one of these two areas:

Physical Education Area
28:29 Teaching of Sports 2 s.h.
(TEAM and Individual) 2 s.h.
28:31 Officializing 1 s.h.
28:107 Physical Education for the Athletic 5 s.h.
28:113 Measurement 2 s.h.
28:118 Methods and Administration of Physical Education 3 s.h.
28:105 Internships 2-5 s.h.
28:187 Psycho-Social Dimensions of Sport 2 s.h.

Team Sports 3 s.h.
(1 semester hour must be in a field sport, 1 semester hour in an Intermediate-level course, elect from basketball, volleyball, field hockey, field sports, softball)

Individual or dual sports 4 s.h.
(1 semester hour must be a racquet sport, 1 semester hour in an Intermediate-level course; elect from archery, swimming, track and field, tennis, golf, wrestling, dance, boxing, archery)

Rhythms 2 s.h.
(1 semester hour of ballet dance, 1 semester hour of modern dance or jazz)

Dance Education Area
28:29 Rhythmic Analysis of Dance 2 s.h.
28:72 Composition 1 2 s.h.
28:74 Composition II 2 s.h.
28:111 Methods and Materials of Teaching Children's Dance 3 s.h.

One of the following:
28:26 Dance Production 3 s.h.
28:110 Twentieth-Century Dance 2 s.h.
28:120 Dance & Education 2 s.h.

28:136 Teaching of Modern Dance 2 s.h.
At least 7 semester hours of the following:
28:11 Modern Dance I 1-2 s.h.
28:12 Modern Dance II 1-2 s.h.
28:13 Jazz 1-2 s.h.
28:10 Ballet 2 s.h.
28:111 Major Ballet I 2 s.h.
28:12 Major Ballet II 3 s.h.
28:13 Major Ballet III 3 s.h.
28:38 Modern Dance II 3 s.h.

Team Sports 1 s.h.
Individual or dual sports 1 s.h.
Rhythms 2 s.h.
(1 semester hour of ballroom dance, 1 semester hour of folk and square dancing)

Gymnastics 1 s.h.

28:37 Advanced First Aid 3 s.h.
28:71 Growth and Motor Development 2 s.h.
28:105 Care of Athletic Injuries 2-3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:182 Sports Analysis 3 s.h.

Recommended:
17:14 Nutrition 3 s.h.
6A:1 Introduction to Financial Accounting 3 s.h.
6F:15 Introductory Financial Management 3 s.h.
6D:31 Introduction to Marketing 3 s.h.
6L:61 Administrative Management 3 s.h.
6E:1-2 Principles of Economics 3 s.h.

Interdepartmental Requirement
The student may elect to complete one internship for 6 semester hours of credit, or two internships for 3 semester hours each, in the following specialties:

Sports specialist
Fitness specialist
Sports administration
Sports marketing

Endorsement in Coaching
28:14 Coaching Women's Sports 2 s.h.
28:318 Advanced Coaching 2 s.h.
28:81 Kinesiology 3 s.h.
28:105 Care of Athletic Injuries 2 s.h.
28:106 Physiological Implications for Teaching Physical Education 3 s.h.
7E:11 Growth and Motor Development 2 s.h.
7P:105 Child Development 3 s.h.
75:196 Coaching Practicum 1-3 s.h.

General Studies Program
The B.S. degree in health, physical education, and recreation requires a minimum of 15 semester hours of coursework in physical education and an additional 20 semester hours in such other areas as art, dramatic arts, dance, environmental health, home economics, music, psychology, recreation, and/or sociology. The student may take additional coursework in physical education. At least 18 of the required 36
semester hours must be in 100-level courses.

Health Education Secondary Approval
This secondary approval area (minimum standards, not a major) for low endorsement 20 teacher certification requires a minimum of 26 semester hours of credit, including these required courses:

- 17:10 Growth and Development of the Young Child 3 s.h.
- 17:41 Food, Nutrition, and Man 3 s.h.
- 27:53 Human Anatomy 2 s.h.
- or 28:80 Anatomy 3 s.h.
- 48:56 Non-Prescription Drugs 2 s.h.
- 27:96 First Aid 0 s.h.
- or 28:37 Advanced First Aid 3 s.h.
- or Red Cross certification

27:13 Introduction to Human Physiology 4 s.h.
7C:112 Human Sexuality 3 s.h.
28:142 Contemporary Issues in Health Education 3 s.h.
28:144 Administration of School Health Program 3 s.h.
28:146 Methods: Health Instruction for Secondary Grades 3 s.h.

Approval to Teach Health in Grades K-9
To qualify for approval to teach health in grades K-9 within the elementary education program (low endorsement 103), the student must earn at least 26 semester hours in that area of specialization, including these required courses:

- 17:41 Food, Nutrition, and Man 3 s.h.
- 27:53 Human Anatomy 2 s.h.
- or 28:80 Anatomy 3 s.h.
- 27:96 First Aid 0 s.h.
- or 28:37 Advanced First Aid 3 s.h.
- or Red Cross certification
- 48:56 Non-Prescription Drugs 2 s.h.
- 27:13 Introduction to Human Physiology 4 s.h.

7P:106 Child Development 3 s.h.
7C:112 Human Sexuality 3 s.h.
28:142 Contemporary Issues of Health Education 3 s.h.
28:144 Administration of School Health Program 3 s.h.
28:146 Methods: Health Instruction for Elementary Grades 3 s.h.

Honors
The Honors Program is designed to serve the interests of superior students. It gives the participant some research experience and a perspective in certain aspects of graduate work. The honors student in physical education takes 25:94-95 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 3.0 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 3.0 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 gone on to provide distinguished service through teaching, coaching, research, administration, and other leadership roles in physical education, dance, and athletics. The department's proud tradition of producing leaders has been furthered by recent graduates, and we continue to encourage high aspirations of both the young women and men we currently serve.

The curriculum assumes previous education in the respective fields. A program is planned with the individual in light of his or her previous education and anticipated future career. Completion of the graduate degree usually leads to teaching, coaching, administration, or supervision in the schools or a university. Research preparation is provided for anyone who wishes a career in that area.

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 visually impaired student works primarily in the Department of Physical Education and Dance, but the resources of the entire University are available, as needed, for the individual student. 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 administration of athletics and physical education, coaching, measurement and evaluation, history and philosophy of physical education and sport, sociology of sport, psychology of sport, and sports communication.

Internships are available in many areas, and are strongly encouraged for specializations in administration, coaching, and communication.

The graduate student group is cosmopolitan and international in makeup.

A research laboratory is available in Halsey Gymnasium. It is equipped primarily for psychosocial measurement, and for research. Other equipment needs may be met on an interdepartmental shared-use basis. A computer terminal is available at Halsey Gymnasium, and complete University computer service is available as needed for research.

Master of Arts
The M.A. degree is awarded on completion of at least 30 semester hours of graduate work including thesis, or 36 hours of coursework without thesis. The curriculum may lead to teaching, administration, supervision in the schools, coaching certification, or preparation for advanced degree work in the chosen area of specialization. Student must demonstrate competency in anatomy, kinesiology, physiology, and
at least three of the following areas: adaptive, measurement, history of physical education or sport, methods and principles, administration of physical education or athletics, curriculum, motor learning, motor development, or psychosocial dimensions of physical activity. Competency may be demonstrated by completion of a course or satisfactory performance on a written examination.

Required Courses
28:205 Techniques of Research 3-4 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.
("For students on thesis option"

Program Options
The M.A. student may select either a general curriculum or a specialization in adaptive physical education, administration of athletics/physical education, coaching, dance, measurement and evaluation, methods and supervision, philosophy of physical education/athletics, psychology of sport, sociology of sport, or sport communication. Students desiring other specializations are encouraged to submit a course of study to the graduate committee for consideration.

Students in both the general curriculum and in an area of specialization work with an advisor in developing their program according to guidelines that have been set by the departmental graduate committee.

Doctor of Philosophy
The Ph.D. degree is awarded on completion of approximately 90 semester hours of graduate work, including general requirements for the master's degree and credit for the dissertation.

Prerequisites
Competency in the areas noted under the M.A. program is also required for doctoral entrance. 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 research tool, students may choose either language or computer science. The language requirement may be satisfied by passing two semesters of a given language with a minimum grade of C, by passing a Graduate Record Examination test in a given language, or by passing a Ph.D. language examination.

The computer tool requirement option may be satisfied by taking three semester hours as approved by the departmental graduate committee.

Required Courses
28:205 Techniques of Research 3-4 s.h.
28:302 Seminar: Perspectives in Human Movement 2 s.h.

Specialization
The student must complete a specialization of 30 semester hours, including dissertation. A student must also take approximately 20 semester hours in one or more departments other than physical education. If appropriate, some of these may be counted toward the specialization. The following specialization areas have been approved: administration of physical education/athletics, measurement and evaluation, psychology of sport, and sociology of sport. Specializations in adaptive physical education and history of sport are in the development stage. Students desiring an area not listed should submit a plan of study for consideration.

Comprehensive Examination
The student writes an examination in the area of specialization, and may also be asked to do a part of the examination orally. The student and advisor select the date of the examination, and it is conducted according to the policies established by the departmental graduate committee. The program of study and dissertation topic must be filed and the tool requirements met prior to taking the specialization examination.

Dissertation
All doctoral students are required to complete a dissertation. A final two-hour examination is held with an appropriate committee.

Residency Requirement
Two semesters of at least 9 semester hours in residence are required.

Dance
Bachelor of Arts
Required
280:26 Dance Production 3 s.h.
280:29 Rhythmic Analysis of Dance 2 s.h.
280:73 Composition I 2 s.h.
280:74 Composition II 2 s.h.
280:80 Anatomy 3 s.h.
280:81 Kinesiology 3 s.h.
280:11 History and Appreciation of Dance 3 s.h.
280:115 Twentieth-Century Dance 3 s.h.
280:173 Composition III 2 s.h.
280:174 Composition IV 2 s.h.
280:177 Beginning Labanotation 3 s.h.
381:009 Dynamic Art Laboratory 4 s.h.

Electives
Twelve semester hours from the following:
280:111 Methods and Materials of Teaching Children’s Dance (same as 75:125) 2-3 s.h.
280:113 Ballet Pointe 1-2 s.h.
280:117 Ballet Pedagogy 2 s.h.
280:120 Dance in Education (same as 75:120) 2 s.h.
280:126 Dance Production Laboratory 1-2 s.h.
280:130 Improvisation 1 s.h.
280:138 Teaching of Modern Dance 2 s.h.
280:141 Introduction to Movement: Dynamics and Personality Growth 3 s.h.
280:142 Introduction to Movement: Dynamics and Personality Growth 3 s.h.
280:151 Intensive Training for the Male Dancer 2-3 s.h.
280:170 Readings in Dance arr.
280:175 Dance Theory 3 s.h.
280:176 Criticism of Dance 3 s.h.
280:178 Intermediate Labanotation 3 s.h.
280:181 Dance Company Class 0-1 s.h.
280:182 Independent Study arr.
280:222 Workshop: Artist in Residence 1-4 s.h.
Courses

Physical Education

Primary for Undergraduates

2811 Pacific Physical Education

Physically education majors only. May be repeated.

2812 Minor Major Physical Education

Elective, open to those who have completed requirement in physical education as 2811. May be repeated.

2814 Coaching Women’s Sports

Introduction to the techniques and psychology of coaching.

2815 Senior Life Saving and Water Safety Instructor’s Course

Leads to Red Cross Senior Water Safety Certificate in Instructor’s Certificate. Register after consultation with instructor.

2816 Introduction to Human Kinetics

Study of the profession of physical education and related disciplines; online approach with guest speakers; job alternatives and opportunities discussed.

2817 Teaching of Sports

Methods of teaching races and individual sports.

2818 Teaching of Sports

Methods of teaching team sports.

2819 Teaching of Dance

Methods course for the teaching of ballet, spotlight, fitness dance, and American dance. Includes study of dance principles, choreography, terminology, and history of dance in film, television, and theater.

2820 Health Education

Principles of health education in elementary and grade school classes.

2821 Field Hockey

Men’s and Women’s field hockey. Designed for students who have had previous experience in field hockey and are interested in becoming officials.

2822 Officialing

Officialing techniques for team sports.

2823 Officiating

May fulfill 50:11 or be taken as independent work.

2824 Advanced Field Hockey

Prepares students for American Field Hockey Association Advanced First Aid and Emergency Care Certificates.

2825 Tennis

1 a.h.

2826 Golf

1 a.h.

2827 Badminton

1 a.h.

2828 Volleyball

1 a.h.

2829 Gymnastics

1 a.h.

2830 Floor Dance

1 a.h.

2831 Field Sports

1 a.h.

2832 Softball

1 a.h.

2833 Basketball

1 a.h.

2834 Modern Dance

1 a.h.

2835 Modern Dance II

1 a.h.

2836 Field and Floor Dance

Basic 25% dance courses. Beginning to intermediate level western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and intermediate western square dance, beginning and 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For Undergraduates and Graduates

101 Fitness for the Individual
Fitness needs of youth and adults, physiological principles of conditioning.

102 Research on Women in Sports
Review of research on women in sports; planning for future research relevant to women in competitive programs.

103 Psychology of Coaching
Application of psychological principles to athletic coaching; aspects of leadership, motivation, and communication.

105 Health Education Workshop
Emphasis on the development of money management skills and lifelong smoking in women's sports; offering specific strategies.

106 Physiological Implications for Teaching Physical Education
Physiological effects of exercise and lack of exercise; physical fitness and various exercise programs.

107 Physical Education for the Physically Disabled
Identification of persons with common disabilities of the heart and test; evaluation of program for the physically impaired. Students: 000:05 and 001:01, or equivalent.

108 Principles of Athletic Administration
Contact and responsibility of women in administration; professional opportunities in women's athletics.

109 Survival Skills
Survival skills for athletic players, evaluation and teaching techniques presented in workshops for experienced coaches.

110 Workshop Methods of Teaching Sports
Survival skills for the teaching of sports; techniques for beginners and for the more advanced; adaptation of techniques to different age levels; presented in workshop for experienced teachers.

111 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

112 Workshop on Intercollegiate Women's Athletics
Field experiences in selected areas of athletics; preparation for specific sports.

113 Women's Health
Preparation and interpretation of health data; awareness and prevention of health issues specific to women.

114 Women in Management
Leadership styles, roles, responsibilities.

115 Women in Society
Leadership styles, roles, responsibilities.

116 Women in Sports
Leadership styles, roles, responsibilities.

117 Women and Athletics
Leadership styles, roles, responsibilities.

118 Women's Athletics Field
Field experiences in selected areas of athletics; preparation for specific sports.

119 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

120 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

121 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

122 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

123 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

124 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

125 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

126 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

127 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

128 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

129 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

130 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

131 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

132 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

133 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

134 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

135 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

136 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

137 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

138 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

139 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

140 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

141 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

142 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

143 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

144 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.

145 Workshops for College Women
Field experiences in selected areas of athletics; preparation for specific sports.
Physical Therapy

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Physician's Assistant Program

See "Division of Associated Medical Sciences" in the "College of Medicine" section of the Catalog.

Physics and Astronomy

Department Head: James A. Van Allen
Assistant department head and undergraduate advisor: Edward B. Notebaert

The Department of Physics and Astronomy provides comprehensive and rigorous instruction in all basic aspects of these subjects. In addition it provides research facilities and guidance for individual scholarly work at an advanced level in selected specialties.

Total departmental enrollments are typically 1,500 student-registrations during each semester of the academic year and 1,300 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 associate laboratories.

Beyond the elementary level, typical course enrollments are 200, and there is ample opportunity for individual work. Special introductory courses having similar enrollments are offered for majors in physics and for others with special interest in the subject. There are about 60 undergraduate majors—25 of whom are honors students—and 35 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 physics training as the basis for a career in another field.

Graduates of the University of Iowa with M.S. or Ph.D. degrees in physics or astronomy continue to find satisfactory employment in universities, colleges, and research laboratories in government and industry, despite a recent national shrinkage in such opportunities.

Undergraduate Major in Physics

The Bachelor of Science program is designed to serve either as preparation for graduate study in physics and related sciences, or as preparation for employment in industry.

The Bachelor of Arts program is designed for students who wish to gain a considerable knowledge of physics but who do not plan a research-oriented career in physics. This degree program can be useful to those planning careers in medicine, law, science-related administration, business, technical writing, or secondary-school science teaching. The B.A. program requires fewer courses in physics and mathematics than the B.S. program, and may provide 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 physics:

23M:25-26 Calculus I-II 8 s.h.
23M:27 Introduction to Linear Algebra 4 s.h.
23M:28 Calculus III 4 s.h.
or
23M:35-37 Engineering Calculus I-II 12 s.h.
and
23M:38 Differential Equations and Linear Algebra 4 s.h.
20:17-18 Introductory Physics I-II 12 s.h.
20:115 Intermediate Mechanics 3 s.h.
20:116 Quantum Mechanics 3 s.h.
20:118 Statistical Physics 3 s.h.
20:129–130 Electricity and Magnetism 6 s.h.
20:132 Intermediate Laboratory (two semesters) 4 s.h.

Two additional courses, one of them at the 100-level, selected from:
GS:120 Optics 3 s.h.
GS:128 Electronics 4 s.h.
GS:132 Intermediate Laboratory (third semester) 2 s.h.
GS:171 Mathematical Methods of Physics 3 s.h.
GS:191 Atomic Physics 3 s.h.
GS:192 Nuclear Physics 3 s.h.
GS:193 Introductory Solid State Physics 3 s.h.
GS:194 Plasma Physics 3 s.h.
GS:387An additional five semester hours of introductory coursework in another science or engineering field.

Undergraduate majors who plan to pursue graduate study are advised to go beyond the minimum requirements given above to the greatest feasible extent, including further work in mathematics.

Bachelor of Arts

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in physics:

23M:25-26 Calculus I-II 8 s.h.
23M:35-36 Engineering Calculus I-II 8 s.h.
20:7-18 Introductory Physics I-II 8 s.h.
or
20:112 College Physics 8 s.h.
20:19 Introductory Physics III 4 s.h.
20:115 Intermediate Mechanics 3 s.h.
20:116 Statistical Physics 3 s.h.
20:128 Electronics 4 s.h.
or
20:129 Electricity and Magnetism 3 s.h.
Undergraduate Major in Astronomy

Astronomy includes the subdisciplines of astrophysics, classical astronomy, radio astronomy, and space astrophysics. A balanced and integrated program of astronomy, physics, and mathematics courses is required for the Bachelor of Arts degree in astronomy. The purpose of this program is to prepare the student for a career or advanced study in astrophysics, radio astronomy, or space astronomy.

The following courses or their equivalents are required for the Bachelor of Arts degree with a major in astronomy:

- 22M/25-26 Calculus I-II (8 s.h. and 4 s.h.)
- 22M/27 Introduction to Linear Algebra (4 s.h.)
- 22M/28 Calculus III (4 s.h.)
- or 22M/35-37 Engineering Calculus I-II (12 s.h.)
- 22M/38 Differential Equations and Linear Algebra (4 s.h.)

- 29/17-19 Introductory Physics I-II (12 s.h.)
- 29/61-62 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.)
- 29/129-130 Electricity and Magnetism (8 s.h.)

- 29/132 Intermediate Laboratory (two laboratories) (6 s.h.)
- 29/137 Astronomical Laboratory (two laboratories) (2 s.h.)
- 29/191 Atomic Physics (3 s.h.)

Undergraduate majors in astronomy who plan to pursue graduate study in astrophysics are advised to go beyond the minimum requirements fixed above to the greatest feasible extent, and have:

- 29/117 Optics (3 s.h.)
- 29/118 Statistical Physics (3 s.h.)
- 29/171-172 Mathematical Methods of Physics (6 s.h.)

A program of courses suitable for a minor in physics or astronomy for baccalaureate candidates can be put together out of upper level courses offered for undergraduate and graduate students. A list of courses approved for credit toward a minor is available in the department office.

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 29/29 Honors Seminar and conduct an investigation with the guidance of a faculty member as part of their program for the Bachelor of Arts or Bachelor of Science with honors in physics or astronomy.

Graduate Program

Two advanced degrees are offered in physics, the Master of Science (with or without thesis) and the Doctor of Philosophy, and one in astronomy, the Master of Science (with or without thesis). 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 in astronomy or astrophysics.

An M.S. degree is not prerequisite to the Ph.D.

The Department of Physics and Astronomy cooperates in interdisciplinary doctoral programs with the Program in Applied Mathematical Sciences (see the "Graduate College" section of the Catalog). An interdepartmental program leading to the M.S. and Ph.D. degrees in chemical physics is also available.

Each entering graduate student is assigned to a faculty adviser who will assist 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 the subject at the level of advanced undergraduate work. The examination is given during the first week of the second semester each year and must be taken by the fourth year graduate students. After a student has selected a research specialty, the appropriate thesis or essay adviser then becomes the candidate's general adviser and the chair of the final examination committee.

Master of Science in Physics

The M.S. degree in physics is offered with thesis or without thesis. Either degree may be an intermediate step toward a Ph.D. degree, or a terminal 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 30 semester hours of graduate work and a thesis based on an original experimental or theoretical investigation by the candidate. No more than 6 of the minimal 30 semester hours may be based on research (29/261 Research: Physics).

The program for the M.S. degree without thesis requires 30 semester hours of graduate work, an independent study of the literature on a chosen topic, and the preparation of a critical essay on that topic. No more than 4 of the minimal 30 semester hours may be for the critical essay (29/220 Special Critical Study).

Up to one-third of the graduate program may be in related scientific fields other than physics and mathematics, for example, chemistry, astronomy, 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:

- 29/115 Intermediate Mechanics (3 s.h.)
- 29/118 Introductory Quantum Mechanics (3 s.h.)
- 29/117 Optics (3 s.h.)
- 29/118 Statistical Physics (3 s.h.)
20:120 Electricity and Magnetism 6 s.h.
20:122 Advanced Laboratory (two semesters) 4 s.h.
20:171-172 Mathematical Methods of Physics 8 s.h.
20:191 Atomic Physics 3 s.h.
20:192 Nuclear Physics 3 s.h.
20:193 Introductory Solid State Physics 3 s.h.

The student's plan of study should provide for as much advanced work as aptitude and previous preparation permit.

Master of Science in Astronomy

The M.S. degree in astronomy is offered with thesis or without thesis. The general requirements are the same as for the M.S. in physics (see above). Course requirements are:

20:155 Intermediate Mechanics 3 s.h.
20:116 Introductory Quantum Mechanics 3 s.h.
20:177 Optics 3 s.h.
20:160 Statistical Physics 3 s.h.
20:180-180 Introduction to Astrophysics 3-6 s.h.
20:121 Solar System Astrophysics 3 s.h.
20:120-120 Electricity and Magnetism 6 s.h.
20:133 Advanced Laboratory 2 s.h.
20:137 Astronomical Laboratory 2 s.h.
20:171-172 Mathematical Methods of Physics 8 s.h.
20:191 Atomic Physics 3 s.h.

A student who intends to continue for a Ph.D. in physics with an astrophysics specialization should take the following courses as early as in his or her master's program as possible:

20:131 Radio Astronomy 3 s.h.
20:232-233 Theoretical Astrophysics 8 s.h.
20:234 Stellar Structure and Evolution 4 s.h.
20:235 Special Topics in Astrophysics 2 s.h.
20:260 Seminar: Astrophysics 2 s.h.

Doctor of Philosophy in Physics

The program of study for the Ph.D. degree with a major in physics includes:

Thorough coursework in both classical and modern theory is compulsory for all candidates, whether their specialized research is to be in an experimental or a theoretical area;

Comprehensive examinations;

Participation in advanced seminars;

Original research in experimental physics, theoretical physics, or astrophysics; and

Preparation and defense of a written dissertation based on this work.

All candidates for the Ph.D. must take at least 27 semester hours of 200-level courses in the department, excluding 20:220, 20:281, and seminars. The following minimum program is recommended as preparation for the comprehensive examinations:

20:191 Atomic Physics 3 s.h.
20:192 Nuclear Physics 3 s.h.
20:193 Introductory Solid State Physics 3 s.h.
20:205 Classical Mechanics 3 s.h.
20:212 Statistical Mechanics I 3 s.h.
20:232-234 Classical Electrodynamics 6 s.h.
20:265-265 Quantum Mechanics I-III 6 s.h.

Advanced mathematics, such as the theory of functions of a complex variable and vector and tensor analysis, is used freely in these courses. An introduction to these fields is given in 20:171-172 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 direction in which his or her interests develop. No more than 30 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 unless he or she has written the dissertation in proper form for formal publication and has submitted it, with the approval of the research adviser, to a widely-distributed standard scientific journal for publication.

Financial Assistance

Persons qualified for graduate study are encouraged to apply for fellowships and assistantships. 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 and staff of the department, and several other computers are available within the department. The central machine shop is fully equipped and staffed with skilled instrument makers and machinists, and there are several electronics and machine shops for the use of advanced students and the research staff.

Experimental research is conducted in astronomy (optical and radio), low energy nuclear physics; plasma physics; solid state physics; magneto-spheric physics; solar-terrestrial, interplanetary, and planetary physics; atomic and molecular physics; low temperature physics; laser physics; and acoustics of 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, for the reception of satellite telemetry, and for computerized decoding and analysis of data. An unusually versatile 60-MM Van de Graaff accelerator, which has been modified for energies up to 14 MeV, is used in studies of nuclear reactions induced by hydrogen, helium, lithium, and beryllium nuclei. Experiments on fundamental thermal, electrical, and magnetic properties of metals, alloys, and compounds are included in the experimental solid state program, as are surface studies of metals and semiconductors. Several experimental 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
Undergraduate Programs

Bachelor of Arts

A student seeking the B.A. degree must complete 27 semester hours of coursework in political science and 12 in one of these departments: economics, geography, history, journalism, philosophy, psychology, sociology, anthropology.

The coursework in political science must include:
1. Introduction to American Politics
2. Introduction to Political Behavior
3. Comparative Politics
4. A course in the political science of the world

Political Science

Department chair: D. Robert Boyse
Faculty: professors D. Robert Boyse, Lane Davis, Donald G. Kinnard, David L. Kinnard, Paul Poirier, Russell Ross, Peter Sme, Vincent Van Dyke, and Robert Whiting

Bachelor of Science

Major requirements for the B.S. in political science are the same as for the B.A., except that two semesters of college-level courses (or the equivalent) in a foreign language are required, and the student must take three semester hours of mathematics or statistics.

Other courses may be used, with the written approval of the director of undergraduate studies in political science.
Master of Arts in Public Affairs

Although all students in the public affairs program must take the core courses indicated in the schedule below, elective opportunities make possible several areas of specialization. Students interested in public administration may use their elective credit to take further courses in equivalent, state, or financial administration; administrative theory and behavior; or quantitative analysis. Students interested in public policy analysis may use their elective credit to take courses in quantitative research methods, and courses dealing with substantive policy fields such as economic policy, health policy, natural resources policy, or social policy.

The M.A. in public affairs is a nonthesis program. The student must complete at least 36 hours of coursework with at least a 3.0 grade-point average, and must pass a written final examination. Although the schedule 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.

Elective 3 s.h.
Total 36 s.h.

Students are expected to choose at least one elective numbered 200 or above. In addition to a wide range of options in political science, the student may choose electives including economics, business administration, urban and regional planning, sociology, geography, higher education, social studies education, civil engineering, and law.

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 8 semester hours of credit for thesis preparation will be counted toward the 30-semester-hour minimum requirement for the general M.A.

The final oral examination covers both thesis and coursework.

M.A. without Thesis

If a student's first-year evaluation committee finds that his or her coursework and research papers 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

The student seeking a Ph.D. degree may demonstrate command of one foreign language or other tool of research, selected with the approval of the doctoral committee. If the tool is other than a foreign language, the student's doctoral committee will specify the criterion to determine whether the requirement has been met. The tool requirement must be met before the student takes the comprehensive examination.

Comprehensive Examination

Students must take the comprehensive examination after completing the sixth semester of residence, or in the first 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
Comparative politics
International politics
Political theory
Public policy and administration
Philosophy and methods of political research

Before taking the written examinations, candidates must present a written dissertation proposal, which must explain and defend the proposal in an oral examination, which may also deal with any matter relevant to the written examinations.

Each Ph.D. candidate in political science must take at least one semester of special supervised training in teaching and in research. This instruction is normally given a student with the service as a teaching or research assistant. A comprehensive statement of departmental requirements is set forth in the Guide to Graduate Study in Political Science. For general graduate admission and degree requirements, see
30-141 Introduction to Social Government and Politics
30-142 Government and Politics of the Soviet Union and Eastern Europe
30-143 Government and Politics of the Far East
30-144 Government and Politics of Latin America
30-145 Latin American Government and Politics
30-146 Government and Politics of Western Europe
30-147 Government and Politics of Eastern Europe
30-148 Government and Politics of Western Europe
30-149 Government and Politics of Eastern Europe
30-140 Government and Politics of Eastern Europe
30-141 Introduction to Social Government and Politics
30-142 Government and Politics of the Soviet Union and Eastern Europe
30-143 Government and Politics of the Far East
30-144 Government and Politics of Latin America
30-145 Latin American Government and Politics
30-146 Government and Politics of Western Europe
30-147 Government and Politics of Eastern Europe
30-148 Government and Politics of Western Europe
30-149 Government and Politics of Eastern Europe
30-140 Government and Politics of Eastern Europe
30-141 Introduction to Social Government and Politics
30-142 Government and Politics of the Soviet Union and Eastern Europe
30-143 Government and Politics of the Far East
30-144 Government and Politics of Latin America
30-145 Latin American Government and Politics
30-146 Government and Politics of Western Europe
30-147 Government and Politics of Eastern Europe
30-148 Government and Politics of Western Europe
30-149 Government and Politics of Eastern Europe

33.1.1 South America and the Caribbean
Latin America and the Caribbean are characterized by diversity in culture, language, and religion. This diversity can be traced back to the region's history of colonization, with European countries like Spain and Portugal playing significant roles. The region is known for its unique blend of indigenous, African, and European influences, which is reflected in its food, music, and art. The Spanish-speaking countries include Mexico, Colombia, and Peru, while Portuguese-speaking countries include Brazil, Portugal, and Angola. This diverse cultural heritage has also contributed to the region's rich tapestry of languages, which includes Spanish, Portuguese, and indigenous languages.

33.1.2 Latin American Religion
Religion plays a significant role in the daily lives of people in Latin America, with Christianity being the predominant religion. The region is also home to a significant number of indigenous religious practices, such as the Andean quipus in Peru and the Mayan calendar in Guatemala. The Catholic Church has a strong presence in the region, with many Latin Americans practicing Catholicism. However, there is also a growing presence of Protestant denominations and other religions.

33.1.3 Latin American History
Latin America has a rich history that is characterized by a complex interplay of European, indigenous, and African influences. The region was explored and colonized by European powers, primarily Spain and Portugal, during the 16th and 17th centuries. This period of colonization led to the establishment of Spanish and Portuguese empires in the Americas, with significant social and economic changes that transformed the region.

33.1.4 Latin American Politics
Latin American politics are characterized by a mix of authoritarian and democratic systems. Many countries in the region have experienced periods of military rule, while others have transitioned to democratic governance. The political landscape is also influenced by issues such as corruption, drug trafficking, and regional conflicts. The region is home to a number of national leaders who have had significant impacts on their countries, such as Nelson Mandela in South Africa and Fidel Castro in Cuba.

33.1.5 Latin American Culture
Latin American culture is known for its vibrant music, dance, and art. The region is home to a rich tradition of music, including flamenco, salsa, and cumbia. Dance forms such as tango and samba are also popular. In terms of art, Latin America is known for its rich tapestry of indigenous art, as well as the works of modern artists such as Frida Kahlo and Diego Rivera.

33.1.6 Latin American Food
Latin American cuisine is diverse and reflects the region's cultural heritage. Dishes such as rice and beans, tacos, and ceviche are popular throughout the region. The cuisine also includes Fusion dishes that combine elements of European and indigenous ingredients. The region is also known for its rich tradition of drinks, such as tequila and caipirinha.

33.1.7 Latin American Literature
Latin American literature is known for its rich tradition of storytelling, with authors such as Gabriel Garcia Marquez and Isabel Allende gaining international recognition. The region's literature is characterized by themes such as colonialism, identity, and social injustice. Works such as "One Hundred Years of Solitude" and "The House of the Spirits" have become classics of world literature.

33.1.8 Latin American Science
Latin America has made significant contributions to the fields of science and technology. The region is home to a number of scientific institutions and universities, with researchers working on a wide range of topics, from biotechnology to environmental science. The region is also home to a number of Nobel laureates, including Mario Molina and Severo Ochoa.

33.2 Psychology
Psychology is the scientific study of the mind and behavior. It is a multidisciplinary field that draws on insights from biology, anthropology, economics, and other disciplines to understand human and animal behavior.

33.2.1 Psychology Definition
Psychology is defined as the systematic and controlled study of the behavior of an organism and the functional processes involved in these behaviors. It seeks to understand the causes, effects, and implications of behavior, both in the context of the individual and in the context of society.

33.2.2 Psychology History
The roots of psychology can be traced back to ancient times, with philosophers such as Aristotle and Erasistratus exploring questions of the mind and behavior. The field of psychology as we know it today began to take shape in the 19th century, with the development of experimental methods and the establishment of psychological laboratories.

33.2.3 Psychology Scope
Psychology is a broad field that encompasses a wide range of topics, including cognitive psychology, social psychology, developmental psychology, and clinical psychology. It is used in a variety of settings, from research and education to clinical practice and business.

33.2.4 Psychology Methods
Psychology employs a variety of methods to study behavior and mental processes. These methods include observation, case studies, surveys, and experimental designs. The choice of method depends on the research question and the nature of the data being collected.

33.2.5 Psychology Applications
Psychology is applied in a variety of fields, including education, business, law, and healthcare. It is used to help individuals and organizations make better decisions, solve problems, and improve performance. Psychology is also used to develop and evaluate interventions aimed at improving well-being and reducing distress.

33.2.6 Psychology Issues
Psychology addresses a wide range of issues, including mental health, social inequalities, and environmental challenges. It is used to understand and address complex issues that affect individuals and society as a whole.

33.2.7 Psychology Careers
Psychology offers a diverse range of career opportunities, from clinical psychology and counseling to research and academia. It is a field that offers opportunities for personal and professional growth, with opportunities to make a positive impact on the lives of others.

Undergraduate Programs
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 postbaccalaureate training in any of a wide variety of areas of specialization. Students interested in psychology should clearly understand that almost all vocational opportunities in psychology require advanced degrees.

The B.S. program is specifically intended for students planning to pursue advanced work in psychology or in a closely related discipline; the B.A. program has somewhat fewer specific requirements and puts less emphasis on experimental methods. Both programs leave ample time for the student to combine work in psychology with work in another discipline or program. Transfer students who have not had the background for the B.S. program but who intend to pursue graduate work in psychology may work to enrich their 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 biopsychology, clinical, child and developmental, social, and experimental psychology. The B.S. program maintains excellent facilities to support teaching and research about human and animal behavior. The B.A. program requires a greater portion of the student's time actively engaged in research and study.

Portuguese
See "Spanish and Portuguese."
BACHELOR OF ARTS

The student shall 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 15 semester hours of the major must be completed in this department.

The B.A. program must include 31:1 Elementary Psychology, or 31:3 General Psychology, or equivalent; 31:43 Evaluating Psychological Research, or equivalent; and one area elective course: 31:150 Experimental Psychology I, 31:250 Psychological Research Methods, or 31:252 Evaluating Psychological Research, or equivalent. This elective 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 shall 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 course, or equivalent: 31:1 Elementary Psychology or 31:3 General Psychology; 31:123 Introduction to Statistical Methods; 31:252 Experimental Psychology I; 31:257 Experimental Psychology II; and one elective course from each of four of the five area groupings given below, with at least three of these four areas electives being 100-level courses.

The major degree in psychology must satisfy the College of Liberal Arts natural science core requirement with two semesters of chemistry, or two semesters of physics, or one semester each of chemistry and physics, or one semester each of inorganic and organic chemistry. The student should consult with his or her advisor concerning specific courses which will satisfy this requirement.

The course in natural science and mathematics required for the B.S. degree cannot be taken pass-fail.

Area Electives

Biopsychology and Physiological Psychology

- 31:50 Comparative Psychology and Ethology: 3 s.h.
- 31:125 Psychology of Learning and Teaching: 3 s.h.
- 31:255 Physiological Psychology and Psychophysiology: 3 s.h.
- 31:258 Introduction to Behavioral Pharmacology: 3 s.h.
- 31:262 Biological Aspects of Behavior: 3 s.h.
- 31:356 Operant Behavior Analysis: 3 s.h.

Clinical Psychology

- 31:13 Introduction to Clinical Psychology: 3 s.h.
- 31:257 Personality: 3 s.h.
- 31:258 Current Topics in the Study of Abnormality: 3 s.h.
- 31:257 Abnormal Child Psychology: 3 s.h.
- 31:170 Behavior Modification: 3 s.h.

Graduate Program

The graduate program in psychology is designed to provide comprehensive training leading to the Ph.D. degree with emphasis in one of the following areas:

1. Social Psychology
2. Experimental Psychology
3. Developmental Psychology
4. Child Psychology
5. General Psychology
6. Biological Psychology

Honors

The department has an active honors program open to majors with at least a 3.5 grade-point average in psychology courses and 3.0 overall. The program includes research seminars and individual research collaboration with faculty members. Students ordinarily are selected to participate in the department's 31:95 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.
animal learning and biopsychology, child and developmental psychology, clinical psychology, general experimental psychology, social psychology, and social psychology. The program is planned to provide both general training and specialty training, with sufficient flexibility to encompass a wide spectrum of student interests.

The primary purpose of the program is to produce graduates who are deeply committed to the study of behavior, familiar with fundamental knowledge about behavioral processes, thoroughly trained in the methods and techniques for careful investigation of basic and applied problems, and determined to make significant contributions to the discipline of psychology and to society generally.

The most appropriate jobs for graduates of this program are in academic, governmental, business, or private institutions which provide opportunities for continuing analysis and investigation of fundamental questions about behavior, for teaching about research results and methodologies, and for application of psychological knowledge and techniques to the solution of important practical problems. Prospective applicants should understand that the number of such positions is sharply limited and the competition for available openings is intense.

The graduate program in psychology is designed as a four-year program leading to the Ph.D. degree. Students in the clinical area ordinarily have an additional off-campus internship year. A student entering with a master's degree from another institution will require at least two additional years in this department, depending on the nature and extent of previous research activity.

Master of Arts with Thesis

The Master of Arts degree with thesis, which is available and ordinarily is the degree taken by students who decide to terminate their work in this department after four semesters. The M.A. without thesis requires satisfactory completion of at least 30 semester hours of graduate credit, including courses required by the department, and successful performance on a written and/or oral examination covering the student's area of specialization. During the first three semesters, each beginning graduate student follows a curriculum involving both required and elective courses designed to develop understanding of the content, theory, research methods, and investigative techniques appropriate to the specialty area. All students also engage in a supervised research project during each of these semesters.

By the end of the third semester, each incoming student is required to have demonstrated competence in coursework and in research practice, and to have participated effectively in the teaching, research, and service functions of the department. In addition, each student intending to proceed toward the Ph.D. is expected to have made substantial progress in planning for the master's research project. A faculty-wide review of each student's progress is conducted at the point in the student's program.

Doctor of Philosophy

The Ph.D. degree in this department requires satisfactory completion of at least 72 semester hours of graduate credit, including at least 33 in the department. The student must satisfy additional requirements in statistics and in writing, and is expected to take sufficient work outside the specialty area to develop a reasonably broad background in the discipline of psychology as a whole.

The student's program is expected to become familiar with the history and philosophy of psychology. The nature of these requirements and their placement within the graduate program varies somewhat among the training areas, and depends also on the individual student's background and interests.

Formal advancement of a student to Ph.D. candidacy follows a review conducted after the fifth semester. By this time the student must have completed and defended the master's thesis, demonstrated an ability to approach psychological problems in an independent and creative manner, and passed a comprehensive examination. During the latter part of the third year and the first part of the fourth year, and while continuing to attend coursework and advanced seminars, the student develops a prospectus for the dissertation research. Following approval of the prospectus, work toward the Ph.D. proceeds with the conflict of the doctoral study, preparation of the dissertation and, finally, the Ph.D. final examination, which is an oral defense of the dissertation.

More specific information about training area programs, degree requirements, policies and procedures for evaluation of student progress and performance, and other matters of concern to graduate students is set forth in the department's Graduate Student Handbook, which is provided to each student at the time of initial registration.

Graduate Specialty Areas

Animal Learning and Biopsychology

The focus of this program is animal learning and biopsychology is on the analysis of learning and motivation, primarily in nonhuman animals, through the application of behavioral and biological principles. Students in this program will have the opportunity to learn the most modern analytical and laboratory methods in computer-assisted experimentation, electronic instrumentation, and histochemical techniques, and biochemical assay procedures. Special faculty...
Child and Developmental Psychology

The child and developmental psychology program provides opportunities for students to acquire a general understanding of the child-developmental field, as well as a focused understanding of developmental trends within a specific field. Specialized areas include sensory and perceptual processes, verbal processes, and memory, learning, and thinking, social processes, and psychopathology.

Social Psychology

The social psychology program offers specialized training in three subareas: social influences on behavior, attitude formation and change, and the psychology of groups. The list of these includes each phenomenon as social learning, imitation, conformity, social facilitation, behavioral contagion, and social reinforcement. The program also includes an emphasis on social cognition, group processes, and social decision-making. The program is designed to allow students to focus on their interests and career goals. The program includes a social psychology lab, a research lab, and a seminar in social psychology.

Clinical Psychology

The clinical psychology program emphasizes an empirical approach to the study of abnormal behavior. It is designed for students who are primarily interested in developing scholarly understanding of normal and abnormal processes and in using research skills necessary to the systematic investigation of such phenomena.

Recognizing that students must become familiar with clinical materials and competence in clinical skills, the program closely integrates practical experience in its Ellin E. Seashore Psychology Clinic with coursework in the context, theory, and research methods of psychology, and with supervised research experience. Students may develop special competence in such areas as psychophysiology, aggression, psychotherapy, behavior therapy, schizophrenia, psychopathology, depression, and clinical-developmental psychology.

A special training program is provided jointly by faculty members from the psychology and the child and developmental areas. This joint training program combines clinical training with substantial work in one of the department's other training areas, which are described below.

Advanced students have opportunities for gainful additional practical experience through placements in clinical facilities maintained by the state and university agencies. Students are assigned to complete a year-long internship at an accredited clinical facility either before or after completion of the four-year academic program. The clinical training program is approved by the American Psychological Association.

General Experimental Psychology

The general experimental psychology program focuses initially on the study of human behavior. Three major subareas are represented: cognitive processes, sensation and perception, and experimental child psychology. Students specializing in cognitive processes acquire expertise in areas such as information processing and decision making, learning and memory, and concept formation and language behavior. Students with interests in sensation and perception may concentrate on visual perception, auditory processes, or mathematical models in perception and psychophysics. Students in experimental child psychology specialize in areas such as discrimination learning, problem solving, and transfer of training.

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 East Hall, include three seminar-type research facilities, several other laboratories, a psychology laboratory, a number of small laboratory computers, and an extensive data acquisition and reduction systems, observation rooms, remote-controlled data acquisition and reduction equipment, several chambers, closed-circuit TV systems, electrophysiological recording rooms, conditioning laboratories, the Ellin E. Seashore Psychology Clinic, and well-equipped electronic, mechanical, and woodworking shops. Specially equipped research facilities are available for use in studies conducted at schools and other locations.

The University's West Computing Center has IBM 370-155 and four PRIME 750 computers. Students and faculty have ready access to these systems through terminals in the department and through a satellite computer facility in East Hall. Office space for graduate students and faculty is provided in East Hall, and the psychology-education branch of the University's main Library is conveniently located in the west wing of East 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 Early Childhood Education Center, the University's General, Children's, and Psychiatric Hospital, the Veterans Administration Hospital, the University Counseling Center, the Child Development Clinic, the Speech
Graduate Admission

As is evident from the preceding paragraphs, the graduate program in psychology is geared primarily to students seeking the Ph.D. degree; all applicants are considered on this basis. A very small number of qualified applicants interested in advanced work only through the M.A. level may be admitted, primarily those who intend to pursue a joint graduate program involving psychology and another discipline or profession. Joint programs must be specially designed and the individual must apply to and be accepted by each program.

Applications may be submitted at any time but are considered only once each year—between February 15 and March 15—for admission the following fall. Admission decisions are based on a comprehensive consideration of prior academic performance and/or of references, scores on the verbal and quantitative sections of the Graduate Record Examination, and the applicant's statement of reasons for pursuing advanced work in psychology. Initial review of admission materials is done by faculty members in the specialty 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 and mathematics, is considered though not required. Students who have not had such a background or who are strongly qualified in other areas may be admitted, but will be expected to complete deficiencies through special coursework or independent study prior to enrolling on the regular graduate program.

A student who has completed substantial graduate work at another institution at the time of admission to this program will be expected to present documents, such as the master's thesis or equivalent significant amount of research and advisory work, which will be evaluated by the graduate committee. Following the completion of the appropriate training area as a basis for placement in the graduate program. If the student is admitted, he will be permitted to complete additional 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.

Special Faculty Strengths

National rankings of graduate programs in psychology consistently have shown this department to be among the top 20 in the nation. The weekly recognized commitment of the faculty to research and scholarship is manifest in the publication of some 75 articles, books, book chapters, and chapters each year, and in the fact that many of the faculty members are, or have been, active as editors, associate editors, and regular contributing editors for major psychological journals.

Courses

For Undergraduates

Either 311 or 313 is prerequisite to all other courses in psychology except 3117 and 31143.

Subject to this general prerequisite and to specific prerequisites for particular areas, all psychology courses are open to freshmen. Either 311 or 313, but not both, may be taken toward the College of Liberal Arts & Social Sciences core requirement, and only one may be applied toward one major in psychology.
For Undergraduates and Graduates

121/131 Social Psychology 3.0 A
Recent research and review in social psychology, including an introduction to the laboratory study of social behavior; critical evaluation of contemporary theories and methodologies.

123/133 Psychology as a Science 3.0 A
Analysis of the major concepts, laws, and theories of modern physics, including the method of research in physics, experimentation, and the principles of the scientific method.

125/135 Development of Children's Social Behavior 3.0 A
Basic processes affecting children's responses to the social environment, especially dependency, social reinforcement, introversion, and social development.

127/137 Personality 3.0 A
Experiences, variables, consequences, variables, and therapeutic techniques in personality development.

129/139 Helpless Change: Current psychological approaches to attitudes change. Laboratory and field methods of research; considerations of the process of change within the social context.

131/151 Environment 3.0 A
Social psychology in the context of urban living, unemployment, sex, and discrimination, and energy crises, with a focus on social judgment, group behavior, and social attitudes.

133/153 Process Groups 3.0 A
A practical approach to group process training techniques, including the use of process groups, role-playing, and the use of group dynamics to enhance the understanding of one's own social behavior.

135/155 Psychology of Aging 3.0 A
Examination of major theories and research on age differences in human behavior. Focus on the developmental changes in physical, cognitive, and social aspects of aging.

137/157 Learning and Memory in Children 3.0 A
Survey of research on children's cognitive development, with an emphasis on learning, memory, transfer of training, and influence of instruction.

139/159 Child Development 3.0 A
Survey of the process of development, with an emphasis on cognitive and social development.

141/161 Development of Social Judgment 3.0 A
Characteristics that contribute to the development of social judgment in experimental and observational learning as children.

143/163 Developmental Psychology 3.0 A
History and philosophy of psychology; present-day issues in psychology; and the role of the psychologist in society.

145/165 Cognitive Development of Children 3.0 A
Developmental research and theory concerning perception, cognition, and motor processes of children.

151/171 Educational Psychology 3.0 A
History of educational psychology; current theories and research on learning, teaching, and assessment.

153/173 Psychology of the Differences 3.0 A
Typical and non-typical development of the student, including perceptual, cognitive, and social functions.

155/175 Human Memory and Cognition 3.0 A
An introduction to contemporary cognitive psychology theory and research on attention, memory, and information processing.

157/177 Personality Psychology I 3.0 A
Theoretical and empirical methods in the study of personality, including review of some major research areas in personality. Philosophy: From 311/115 or 311/113.

159/179 Personality Psychology II 3.0 A
Labs and groups in personality assessment; experimental research in learning, motivation, and social psychology.

161/181 Psychology of Learning 3.0 A
Theoretical and empirical bases of learning in animals and humans. Philosophy: From 311/115 or 311/113 or approval of instructor.

163/183 How Verbal Behavior to Exceptional Subjects 3.0 A
Introduction to behavioral models in psychology and the application of psychological principles to exceptional subjects.

165/185 Psychological and Pedagogical 3.0 A
Introduction to basic concepts and techniques in psychology and education, and their application to the educational process. Focus on research and development.

167/187 Drugs and Behavior 3.0 A
Pharmacological and behavioral problems involved in drug abuse and dependency; social and psychological consequences of drug use.

169/189 Behavior Analysis 3.0 A
Behavioral analysis of social behavior; introduction to behavioral theory and research.

171/191 Mental Health 3.0 A
Theories of mental health and illness; diagnosis and treatment of mental disorders.

173/193 Materials and Methods 3.0 A
Development of laboratory techniques in psychology, with emphasis on research design and data analysis.

175/195 Psychology of Emotion and Behavior 3.0 A
Theories of emotion and motivation; development of laboratory techniques in psychology.

177/197 Ethical and Professional 3.0 A
Examination of the ethical and professional standards in psychology and the responsibilities of psychologists.

161/165 Introduction to Psychology I 3.0 A
Behavioral and cognitive theories in the psychology of learning, motivation, and mental processes.

151/165 Introduction to Psychology II 3.0 A
Behavioral and cognitive theories in the psychology of learning, motivation, and mental processes.

163/167 Experimental Psychology 3.0 A
Labs and groups in personality assessment; experimental research in learning, motivation, and social psychology.

165/169 Psychological and Pedagogical 3.0 A
Introduction to basic concepts and techniques in psychology and education, and their application to the educational process. Focus on research and development.

167/171 Drugs and Behavior 3.0 A
Pharmacological and behavioral problems involved in drug abuse and dependency; social and psychological consequences of drug use.

169/173 Behavior Analysis 3.0 A
Behavioral analysis of social behavior; introduction to behavioral theory and research.

171/175 Mental Health 3.0 A
Theories of mental health and illness; diagnosis and treatment of mental disorders.

173/177 Materials and Methods 3.0 A
Development of laboratory techniques in psychology, with emphasis on research design and data analysis.

175/179 Psychology of Emotion and Behavior 3.0 A
Theories of emotion and motivation; development of laboratory techniques in psychology.
For Graduates

3.1170 Williams Development and Change 3.h.
Planning of research leading toward improvement of the teaching-learning relationship; development of instructional materials; participation in research through seminars, courses, test situations, dis placements, seminars, and courses for graduate students.

3.1180 Social Learning Processes 3.h.
Decision and reaction in critical thinking about the study of human behavior and social adjustments in children.

3.1181 Processes in Social Development 3.h.
Basic study and critical thinking about the nature of social learning in children.

3.1182 Perspectives 3.h.
Research in social psychology and personality development in children.

3.1186 Philosophy of Modern Psychology 3.h.
Analysis and discussion of different methods in the study of human nature and behavior in school environments. Treatment in analyzing psychological research.

3.1187 Psychobiological 3.h.
Animal studies in psychological research.

3.1188 Discovery and Problem Solving in Child Psychiatry 3.h.
Research and critical thinking about the study of the processes of human behavior in children.

3.1197 Experimental Psychobiology 3.h.
Detailed examination of the effects of experimental variables on behavior and mental processes, with the purpose of determining the factors that influence behavior in these processes.

3.1198 In patents Effect of Hunger 3.h.
Stimulated thinking about the nature of experimental variables on behavior and mental processes, with the purpose of determining the factors that influence behavior in these processes.

3.1199 Laboratory Learning and Memory 3.h.
Research in laboratory learning and memory processes.

3.1201 Advanced Developmental Psychology 3.h.
Analysis of psychological theories, techniques, and underlying factors of human development.

3.1202 Learning and Problem Solving in Children 3.h.
Research and critical thinking about the study of the processes of human behavior in children.

3.1203 Psychological Variables and Human Development 3.h.
Detailed examination of the effects of experimental variables on behavior and mental processes, with the purpose of determining the factors that influence behavior in these processes.

3.1204 Psychological Variables and Human Development 3.h.
Detailed examination of the effects of experimental variables on behavior and mental processes, with the purpose of determining the factors that influence behavior in these processes.
park and recreation settings; voluntary and social agency recreation programs; therapeutic recreation programs; school, military service, commercial, and industrial recreation programs; and teaching and research.

In its recreation aspect, the profession deals with activities ranging from music and drama to sports and tourism. The park aspect deals with the planning, design, maintenance, and management of recreational (park and) facilities.

In addition to professional preparation, the Program in Recreation Education offers courses in leisure research, the diversity of cultural views and attitudes toward free time, and the study of leisure as a contemporary social and cultural issue. The department serves and consults with numerous systems throughout Iowa and the nation.

Bachelor of Science

The student must take 34 semester hours of professional core courses, including:
104:10 Foundations of Recreation
104:111 Leisure Research
104:115 Introduction to Therapeutic Recreation
104:121 Orientation to Special Populations
104:125 Role of Therapeutic Recreation in Rehabilitation
104:140 Orientation to Rehabilitation Settings
104:162 First Aid

The student must also take 9 to 15 semester hours of courses in one of the areas of concentration described below.

Community Recreation

The community recreation concentration is designed for students preparing for positions in which they will be responsible for organizing and administering recreation programs, facilities, and departments. This concentration is oriented primarily to municipal, district, and county-level recreation and park departments. Courses required for this area of concentration are:

104:120 Park and Recreation Facility Management
104:124 Introduction to Planning and Design of Recreation and Park Areas and Facilities
Three courses selected with adviser

Therapeutic Recreation

Therapeutic recreation focuses on preparing students to organize, plan, and lead recreation programs in treatment and correction settings for people who are ill, handicapped, aged, disabled, and disadvantaged. Courses required for this concentration are:
104:120 Orientation to Rehabilitation Settings
104:121 Orientation to Special Populations
104:125 Role of Therapeutic Recreation in Rehabilitation
Three courses selected with adviser

Leisure Studies

The leisure studies concentration is designed for students preparing for graduate work, or who have a major interest in leisure research or leisure as a contemporary social issue, or an interest in diverse fields of recreation, such as outdoor, industrial recreation, etc. It is the most flexible of all concentrations, and makes the maximum use of courses outside of the Program in Recreation Education. It is also ideal for students wishing to obtain a minor in recreation education.

Internship Opportunities

The recreation education program places special emphasis on practical experience and student involvement with the profession and practitioners. Students are encouraged to attend state and national professional conferences, and every class in the professional core includes lectures by working professionals, as well as opportunities for field experience related to course content.

The practical emphasis is climaxd by a professional internship for a full semester in an agency and position of the student's selection. The internship is designed to lead to professional placement. More than 150 local, state, and federal departments, agencies, and enterprises provide fieldwork and internship opportunities for students in the program.

Honor

Admission to the honors program in recreation education requires a formal application, completion of at least 30 semester hours of coursework at the University, completion of at least 9 of the 22 semester hours of required major coursework, and at least a 3.0 grade-point average on all college work attempted and on all work attempted in recreation education.

To graduate with honors in recreation education, the student must successfully complete six semester hours of honors work. With the permission of the chair of the department, the student may take three semester hours of honors work in another department.

Master of Arts

The master's program is designed to prepare students for administrative, supervisory, and teaching positions in recreation systems and in universities. It offers two areas of specialization: recreation administration and therapeutic recreation. It may be taken with a thesis (33 semester hours) or without (38 semester hours). An introduction to scholarly activities and research is provided through 104:163 Leisure Research, or equivalent, and preparation of a thesis or research report. The research will result in a modest contribution to knowledge, a review of the literature, or a synthesis or design in the park and recreation field.

Recreation Administration

This area focuses on the development and administration of recreational programs in settings such as municipal departments, schools, volunteer agencies, churches, the armed forces, industries, private organizations, etc. The emphasis within these programs may be on special population groups, such as inner-city and poverty groups, the aged, children, and youth, or upon the meaning of leisure as a social phenomenon, with
Religion

Academic rather than vocational in its orientation, the undergraduate major in religion provides a foundation for advanced academic degree work, or for study at a theological seminary. The school's graduate program provides preparation for the study and teaching of religion as an academic discipline. Many University students majoring in religion are also subject to psychology courses in religion, as part of their general education, some elect religion as a second major.

Bachelor of Arts

For a major in religion, undergraduate students elect at least 24 semester hours of coursework in religion according to their own interests. At least 12 semester hours must be in courses at the junior-senior level, classified as religion courses. Students electing to major in religion fill at least 12 semester hours in related courses, such as anthropolgy, art, classics, history, philosophy, psychology, or sociology. The student must fulfill the requirements of the College of Liberal Arts (see the "Catalogue of Liberal Arts" section of the Catalog.). The selection of the foreign language must be approved by the adviser.

Honors

Religion majors eligible for liberal arts honors program may obtain a degree with honors through satisfactory completion of an honors essay during the senior year.

Graduate Programs

The School of Religion seeks to prepare a select and limited number of graduate students to become specialists in the study and teaching of religion. Graduate study is offered in five areas, including 13 fields:

- Jewish and Christian Scriptures
- Old Testament
- Post-Biblical Judaism
- New Testament
- History of Christianity

Early (to 1500)
- Modern (since 1500)
- Asian
- Theology and Ethics
- Jewish
- Roman Catholic
- Protestant
- World Religions
- Methodology
- Religion in India, China, or Japan

Religion and Personality
Religion and Personality Development
Religion and Health

Master of Arts

Candidates for the M.A. in religion must complete 30 semester hours of courses, with a minimum of 10 semester hours in each of three areas of graduate study. A maximum of 8 semester hours of graduate credit may be transferred from another institution toward the M.A. degree. Four hours may be thesis research. The comprehensive examination is ordinarily taken before writing the M.A. thesis.

The master's candidate must demonstrate a reading knowledge of French or German. With the approval of the advisory committee, another language may be substituted for French or German when appropriate to the student's program of study. A thesis is required. Its purpose is to enable the student to demonstrate mastery of the tools and techniques of scholarly work in one field.

Master of Arts in Religion and Health

Study of the role of religion in illness and health requires a combination of theoretical and clinical investigation. The University 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 coursework. Four may be double counted. This degree cannot be transferred from another accredited graduate or professional school.
The program includes required courses in religion and philosophy, in related fields of ethics, religion in America, and other relevant fields outside the School of Religion. The student ordinarily takes the comprehensive examination before writing the thesis. Knowledge of a foreign language, statistics, or another research tool may be required, at the discretion of the student's advisory committee.

In addition to the general requirements for admission outlined below, the school generally requires an on-campus interview of applicants to the M.A. program in religion and health; however, the interview may be conducted off campus by an accredited member of the Association for Clinical Pastoral Education.

Doctor of Philosophy

Candidates for the doctorate must complete a minimum of 72 semester hours of graduate coursework. 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 coursework 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 examinations. With faculty approval, another language may be substituted for either French or German. In some areas, however, there are special additional language requirements.

Doctoral 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 examinations, 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 five separate programs: Judaism and Christianity in the Hellenistic 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.

Application for admission to these programs may be made before or after enrolling for graduate study. The student is expected to have passed the doctoral language requirements by the end of the second year of graduate study and at least 12 months before taking the comprehensive examinations.

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 examinations, 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.

A student who fails the doctoral comprehensive examinations may, with approval of the faculty, complete a thesis for a terminal Master of Arts degree.

More detailed information on degree requirements and graduate study policies of the School of Religion are in information for Graduate Students, which is made available to all applicants. It is regularly updated. Inquiries about any of the programs may be made to the director of the school.

Facilities

The University Hospital and Clinics provides clinical opportunities for students in religion and philosophy, particularly in clinical pastoral education and the M.A. program in religion and health. Individual courses on such topics as death and dying and medical ethics also utilize hospital personnel and facilities.

Graduate Financial Aid

The School of Religion has available three types of departmental financial aid: a teaching-research fellowship, teaching assistantship, and research assistantship. Awards are made annually on a competitive basis. First-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 score of 1050 on the Graduate Record Examination (GRE) Aptitude Test and a 3.0 grade-point average for admission to the M.A. program, and a Graduate Record Examination score of 1100 and a grade-point average of 3.2 for admission to the Ph.D. program.

Courses

Primarily for Undergraduates

101. Old Testament Survey

151. New Testament Survey

199. Self-Concept and Personal Concerns

199A. Old Testament Survey

199B. New Testament Survey

201. Literature of the Hebrew Bible in its Historical Setting

252. Introduction to Scholasticism

252A. Principal Teachings of the Orthodox Church: St. Gregory Nazianzus

252B. Principal Teachings of the Catholic Church: Development since Version II.
3.1.17 Studies in New Testament Theology
3.1.18 Division of Wesleyan Methodism
3.1.19 Historical and Historical/Theological Writing
3.1.20 Theological Journal
3.1.21 Theology of Culture
3.1.22 Theology of Nature
3.1.23 Theology of Society
3.1.24 Theology of Science
3.1.25 Theology of Technology
3.1.26 Theology of World
3.1.27 Bibliography
3.1.28 Index
3.1.29 Notes
3.1.30 References
3.1.31 Indexes
3.1.32 List of Contributors
3.1.33 List of Books
3.1.34 List of Periodicals
3.1.35 List of Organizations
3.1.36 List of Websites
3.1.37 List of Journals
3.1.38 List of Datasets
3.1.39 List of Organizations
3.1.40 List of Websi...
Rhetoric

Coordinator: Doreen J. Ochoa
Faculty: professors Margaret M. McConnell, Dorothy J. Ochoa

Rhetoric Program offers students direct opportunities, through their own oral and written communication, to evaluate their experiences and to explore and formulate possibilities for their personal and intellectual growth.

Responsibly using various sources of information and investigation, analyzing, evaluating, and responding to the ideas, beliefs, and attitudes of other writers and speakers are several functions of rhetorical coursework. Rhetoric "instructions" properly, responsibility, however, is to help students clarify their own thinking and improve their own communication.

Satisfactorily proficiency in rhetoric is a requirement for baccalaureate graduation from the College of Liberal Arts (see the "College of Liberal Arts" section of the Catalog).

The Rhetoric Program's reading and writing labs are available to all University students, on a voluntary basis (see the "Services for Students" section of the Catalog).

Courses

104 Rhetoric 3 A.
Instruction and practice in written and oral communication. May be taken in lieu of 110 for honors admissions.

110 Rhetoric 3 A.
Students taking and/or students with college-level writing end in another course. Regular assignments consist of regular writing assignments. Students will prepare for a general education course, and library resources.

Students are encouraged to develop efficient study habits, vocabulary growth, reading comprehension, and learning abilities and improvement of communication skills in another rhetoric course.

112 Rhetoric 3 A.
After an initial emphasis on writing, instruction focuses on the particular needs and concerns of the students. Students will prepare for a general education course, and library resources.

Students are encouraged to develop efficient study habits, vocabulary growth, reading comprehension, and learning abilities and improvement of communication skills in another rhetoric course.

119 Rhetoric: Introduction to College Writing 3 A.
For students who need intensive work toward the development of both writing abilities before 104.

Russian

Department chair: Ray J. Perrett, Jr.
Faculty: professor Roman Loszczyznyk

Graduate instructors: Ray J. Perrett, Jr., Mary B. Wilkin, Christopher A. Watts

The purpose of the Russian program is to give students training in both the written and spoken Russian language and literature. An important secondary objective of the program is to give students an understanding and appreciation of Russian civilization and culture. A knowledge of Russian is seldom an end in itself but rather a means to some other vocation. The department encourages all of its beginning students to pursue a joint major and to develop their interest in other 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 Russian, the social sciences, and the social sciences have also strengthened their career preparation through the study of Russian. Some students major in Russian before going into law, 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 regularly interview job candidates who have advanced training in Russian. Students who develop an excellent facility with the language may pursue careers in communications, literary and technical translation, and interpretation.

Bachelor of Arts

Students who major in Russian must meet 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:

411:151-152 Intermediate Composition and Conversation 8 s.h.
411:115 Advanced Composition and Conversation 3 s.h.
411:171-172 Reading in Representative Russian Literature 6 s.h.

Three of the following:
411:151 Russian Literature in Translation 1800-1900 3 s.h.
411:152 Russian Literature in Translation 1860-1917 3 s.h.
411:158 Tolstoy and Dostoevsky 3-4 s.h.
411:181 Soviet Literature in Translation 3 s.h.
411:168 Russian Culture 3 s.h.
411:191 Russian Civilization 3 s.h.

Students majoring in Russian are urged to include related courses in economics, geography, history, or political science among their electives.

All students majoring in Russian are strongly encouraged to enroll in the consolation course 411:127 Phonetics and Pronunciation. With the consent of the instructor, students may enroll in 411:108 Special Readings for instruction in business Japanese.

For a minor in Russian the student must complete a minimum of 16 semester hours in the department, 12 of which must be advanced courses selected with the approval of the department.
Honors
Russian majors of junior or senior standing with a grade-point average of at least 3.0 both in Russian and overall may enroll in the honors program in Russian. An extensive reading program with discussions, regular papers, and a semester paper constitutes each honors work unit of two semester hours. Students may take up to eight semester hours of honors in Russian.

Summer and Study Abroad Programs
The department regularly encourages undergraduate and graduate students to participate in intensive programs of language study both in the United States and in the Soviet Union. In recent years an increasing number of students have studied in summer and semester programs at Lingnitz State University under the auspices of the Council on International Educational Exchange. Other students have accelerated and refined their Russian language skills in various intensive summer programs at major American universities. Inquiries should be directed to the Russian department office.

Master of Arts
Offered with or without thesis, the M.A. program in Russian offers two major emphases, in literary or in language study. The focus in 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 influences, and develop the ability for sound criticism of form, content, and language of works in all genres.

Students selecting an emphasis on language studies focus on the historical development of Russian, and do advanced study of contemporary phonology, morphology, syntax, and stylistics.

Candidates for the master's degree must have completed the equivalent of the undergraduate major in Russian. Deficiencies in previous training may be made up by taking appropriate courses. Candidates for the master's degree are required to complete a minimum of 30 semester hours of graduate work, with or without thesis. The program should include courses in related fields such as romance literature, history, philosophy, and other languages. A student in the thesis program may earn from four to eight semester hours of credit for thesis preparation. Candidates for the M.A. must pass a written and oral examination; they must also demonstrate a reading knowledge of either French or German.

Financial Aid
Aid is available to graduate students in the form of tuition scholarships, University fellowships, and teaching and research assistantships. It is awarded annually on a competitive basis to the best qualified applicants. Ordinarily teaching assistantships are not awarded to first-year students, though exceptions are sometimes made on the basis of advanced language skills. Applications are considered only from students who have been admitted to the Graduate College. Inquiries should be addressed to the departmental office.

Coursework for Nonmajors
The department offers special reading courses designed for students from other fields who need a reading proficiency in Russian in either the social or natural sciences. A scientific Russian course is offered for students in sciences who need to develop reading ability for research purposes. Some cases are open to University students from all departments and are offered in English. These include survey courses in Russian literature, culture, and civilization, readings in Soviet literature, and monograph courses on Tolstoy and Dostoevsky.

Special Activities
Each year the department presents several guest lectures and sponsored films. Students sometimes put on Russian plays. Russian Circle is an organization open to undergraduates and graduates for social activities. Participation in Russian Circle also provides students with the opportunity to practice speaking Russian with other members of the department.

Language Laboratory
The University's Language Laboratory provides facilities for language learning, teaching, and research. Equipment in the lab includes standard and short wave radios, tape recorders, record players, soundproof recording rooms, and other rooms. In electronic classroom, a soundproof workroom, and a library of tape and disc recordings are also available.

Courses
For Undergraduates and Graduates

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>41:101</td>
<td>Russian I</td>
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</tr>
<tr>
<td>41:102</td>
<td>Russian II</td>
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<tr>
<td>41:120</td>
<td>Russian Reading</td>
<td>4.0</td>
</tr>
<tr>
<td>41:121</td>
<td>Russian Writing</td>
<td>4.0</td>
</tr>
<tr>
<td>41:199</td>
<td>Russian Language and Civilization</td>
<td>4.0</td>
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</table>

Standard second-year course recommended for students entering their foreign language program.

For Majors

<table>
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<th>Title</th>
<th>Credits</th>
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<td>Advanced Russian</td>
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<tr>
<td>41:161</td>
<td>Advanced Russian Composition</td>
<td>4.0</td>
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For Nonmajors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>41:150</td>
<td>Basic Russian</td>
<td>4.0</td>
</tr>
<tr>
<td>41:151</td>
<td>Basic Russian Composition</td>
<td>4.0</td>
</tr>
</tbody>
</table>

For Majors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>41:160</td>
<td>Advanced Russian</td>
<td>4.0</td>
</tr>
<tr>
<td>41:161</td>
<td>Advanced Russian Composition</td>
<td>4.0</td>
</tr>
</tbody>
</table>
Science Education

Head: Robert E. Yager

Associate Professor: Carol N. Yager, Vincent N. Lenzie


Assistant Professor: Teresa G. Driscoll, Robert A. Gribble, William C. Hite, Ronald L. Kuebbeler, Thomas S. Mayo, Thomas J. Mizell, Richard A. Pohl, Paul A. Streib, Kyle B. Stahl, Frederick B. van Deusen, Gay C. Wren, Jerry J. Young, Charles N. Zehr, Clifford Foster, Louis A. Souto, John A. Thoma, Donald R. Wharton, Donald H. Wink, and Peter J. Wosinska


Science education is a discipline concerned with the interface between science and society. The academic programs in science education therefore require 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 for the above course offerings vary by a variety of departments.

The Science Education Program has attracted national and international attention. The program has received over $4 million in federal support since 1980. This support has helped establish a specific program of gifted and talented secondary school students, a master teacher education programs, an extensive program of instruction and services for in-service teachers across Iowa, a skill program for attracting undergraduates in their studies of basic science, a philosophy of science sequence at the undergraduate and graduate level, a program evaluation component, and a variety of special longitudinal research programs.

Undergraduate Programs

The undergraduate program in science education represents a transdisciplinary major in science for all students while providing an appropriate option for students interested in science teaching, one of the major professions, an allied health field, specific preparation for optometry or mortuary science training, or areas such as scientific journalism and law.

The science education major is not intended to prepare students for advanced study in any one area of science. When graduates of the Science Education Program elect to pursue graduate studies in a single area of science, it is often necessary for them to complete additional courses in their discipline after admission to the Graduate College.

The Bachelor of Arts degree in general science requires a minimum of 44 semester hours and the Bachelor of Science degree requires 48 (see "Quarterly Science" in this section of the catalog), the 58-quarter-hour emphasis area in science education qualifies graduates for either degree. The language proficiency requirements are the only differences between the two degrees.

All of the emphasis areas in science education have the following characteristics in common:

Depth in a general area of science, equivalent to two or six semesters of sequential study;

Preparation in a second area of pure science, equivalent to two years or four semesters of sequential study;

Introduction to two other fields of science;

A specified program in mathematics as a tool of science (more mathematics is required for the physical science emphasis than the biological one);

A view of science from an historical/philosophical/cultural perspective; and

Experience with the application of scientific knowledge in a technological sense.
History/Philosophy/Sociology of Science
97:128 Meeting of Science 2-3 s.h.
97:130 Science in Historical Perspective 2-3 s.h.

Earth Science Emphasis

Courses in Geology
12:9 Introduction to Geology 4 s.h.
or
11:23 Earth History and Resources 4 s.h.
or
11:24 Man and His Physical Environment 4 s.h.
12:6 Evolution of the Earth 4 s.h.
12:9 Geology of Iowa 2 s.h.
12:41 Mineralogy 4 s.h.
12:108 Introduction to Oceanography 2 s.h.
Elective course(s) 4 s.h.
Total 20 s.h.

Supporting Science Courses
41:13-14 Principles of Chemistry I-II 6 s.h.
41:16 Elementary Chemistry Laboratory I 2 s.h.
41:21-122 Organic Chemistry I-II 6 s.h.
Total 14 s.h.

Courses in Geology and Physics
29:9 Basic Physics 4 s.h.
12:3 Principles of Physical Geography 2 s.h.
Total 6 s.h.

Mathematics as a Tool
22:15 Mathematics for the Biological Sciences 4 s.h.

Additional courses are recommended.

Application of Science
Two approved courses (4 semester hours) chosen with the advisor's assistance; a wide variety of transfer courses from such applied areas as engineering, agriculture, and technical schools 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.

Environmental Studies Emphasis

Courses in Botany
21:1 Introduction to Botany 4 s.h.
37:5 Principles of Animal Biology 5 s.h.
21:128 Fundamental Genetics (same as 37:128) 3 s.h.
21:5 Evolution (same as 37:131) 4 s.h.
21:122 Ecology (same as 37:132) 4 s.h.
Total 20 s.h.

Courses in Chemistry
41:13-14 Principles of Chemistry I-II 6 s.h.
41:121-122 Organic Chemistry I-II 6 s.h.

Other Environmental Courses

Twelve semester hours from the following:
44:19 Natural Environmental Issues 2 s.h.
or
44:19 Natural Environmental Issues 2 s.h.
44:101 Introduction to Weather and Climate 3 s.h.
44:131 Stream Processes and Water Resources 3 s.h.
44:122 Natural Resources of the United States 3 s.h.
44:124 Introduction to the Global Environment 3 s.h.
44:125 Environmental Impact 3 s.h.
44:126 American Wilderness: Environment and Issues 2-3 s.h.
44:127 World Food Problems 2 s.h.
12:109 Introduction to Oceanography 2 s.h.
12:125 A Planet in Crisis 2 s.h.
12:114 Energy in Contemporary Society 3 s.h.
523:150 Principles of Environmental Engineering 3 s.h.
523:154 Environmental Microbiology 3 s.h.
523:155 Limnology 2-3 s.h.
63:101 Dynamics of Health 3 s.h.
63:102 Man and the Environment 3 s.h.
63:109 Community Health 2 s.h.

Mathematics as a Tool
22:15 Mathematics for the Biological Sciences 4 s.h.

Additional courses are recommended.
### Application of Science

Two approved courses (4 semester hours) chosen with the adviser'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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>97:128 Meaning of Science</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

#### Health Emphasis

Courses in Biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>37:3 Principles of Animal Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>37:116 Parasitology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>61:167 General Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>72:150 Intermittent Physiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>98:110 Biochemistry</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Total: 20 s.h.

#### Courses in Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:13-14 Principles of Chemistry I II</td>
<td>8 s.h.</td>
</tr>
<tr>
<td>4:121-122 Organic Chemistry I II</td>
<td>8 s.h.</td>
</tr>
</tbody>
</table>

Total: 12 s.h.

#### Related Science Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>63:101 Dynamics of Health</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>63:106 Community Health</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>42:112 Human Sexuality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:9 human Development and the Family</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:41 Food, Nutrition, and Man</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>17:106 Basic Aspects of Aging</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7:116 Drugs: Their Nature, Action, and Use</td>
<td>0-2 s.h.</td>
</tr>
</tbody>
</table>

Total: 10 s.h.

#### Other Science Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:2 Lectures in Men and His Physical Environment</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>29:5 Basic Physics</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

#### Mathematics as a Tool

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:15 Mathematics for the Biological Sciences</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

Additional courses are recommended.

#### History/Philosophy/Sociology of Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>97:128 Meaning of Science</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### Physical Science Emphasis

In the physical science emphasis, the student chooses either a chemistry or a physics concentration and completes the courses listed for that concentration. Students in both concentrations complete all other courses listed for the physical science emphasis.

#### Chemistry Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:13 Principles of Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:14 Principles of Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:15 Elementary Chemistry Laboratory I</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>4:101 Elementary Quantitative Analysis</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>4:121 Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:122 Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>4:130 Physical Chemistry for the Life Sciences</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>20:11 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:12 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:19 Introductory Physics II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:15 Intermediate Mechanics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

#### Physics Concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:11 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:12 College Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:19 Introductory Physics II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>20:15 Intermediate Mechanics</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

#### Course in Earth Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>20:50 Moon Astronomy</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>12:6 Introduction to Geology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

#### Mathematics as a Tool

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>22M:25 Calculus I</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>22M:26 Calculus II</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

### Application of Science

Two approved courses (4 semester hours) chosen with the adviser'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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>97:128 Meaning of Science</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>2-3 s.h.</td>
</tr>
</tbody>
</table>

### Honors

A student mapping in science education may earn an honors degree by completing all general requirements of the honors program. Requirements include four semesters of 97:110 Seminar: Selected Science and Education Topics, at least 4 semester hours of credit in 97:99 Honors Research Project, and completion of a significant research project approved by a faculty adviser and described in a final paper prepared for the science education library.

### Minors

Minors are designed to provide a set of courses necessary to qualify the student for a possible teaching certificate in a particular area of science. All science teaching minors must include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>75:151 Science Methods I: Individual Teaching in Science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>75:152 Science Methods II: Resources and Teaching Strategies</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>75:191 Observation and Laboratory Practice in the Secondary School</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>97:128 Meaning of Science</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>97:130 Science in Historical Perspective</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

Additionally, the student must meet the requirements in his or her emphasis areas:

#### Biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:1 Introduction to Botany</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>37:3 Principles of Animal Biology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>97:103 Societal and Educational Applications of Biological Concepts</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Botany and zoology electives | 9 s.h. |
Chemistry
4:13-14 Principles of Chemistry 18 s.h.
4:18 Elementary Chemistry Laboratory 2 s.h.
97:106 Societal and Educational Applications of Chemical Concepts 10 s.h.
Physical Science
29:11-12 College Physics 8 s.h.
97:105 Societal and Educational Applications of Selected Concepts of Physics 10 s.h.
General Science
2:1 Introduction to Botany 4 s.h.
29:61 General Astronomy 4 s.h.
12:3 Principles of Physical Geology 2 s.h.
or 12:4 Principles of Historical Geology 2 s.h.
4:13 Principles of Chemistry I 3 s.h.
29:11 College Physics 4 s.h.
Environmental Studies Emphasis
2:1 Introduction to Botany 4 s.h.
57:3 Principles of Animal Biology 5 s.h.
57:132 Ecology 2 s.h.
or 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 3 s.h.
Earth Science
12:3 Principles of Physical Geology 2 s.h.
12:4 Principles of Historical Geology 2 s.h.
29:61 General Astronomy 4 s.h.
Geology and astronomy electives 10 s.h.
97:102 Societal and Educational Applications of Earth Science Concepts and Topics 10 s.h.

Iowa-UPSTEP
Iowa-UPSTEP is a continuing program for UI undergraduate students interested in exploring science teaching as a career option. Students register for program seminars and a variety of practicum experiences. In addition to experiences with youth, with science, and with regular courses, students are involved in excursions, social activities, and special action projects.

Graduate Programs
The Science Education Program offers graduate studies leading to the degrees of 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 and/or science education at the college level, and for persons interested in developing instruction programs in science, 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
*Professional education sequence 26 s.h.
History/philosophy of science 4 s.h.
Science (beyond 50-semester-hour undergraduate requirement) 10 s.h.
Minimum total 40 s.h.

Master of Science without Thesis
Advanced science education 12 s.h.
Major field of science (beyond emphasis area for undergraduate major) 12-16 s.h.
Applied science 4 s.h.
Minor science field 10 s.h.
Minimum total 38 s.h.

Master of Science with Thesis
Advanced science education 10 s.h.
Advanced science 14 s.h.
Applications of science 2 s.h.
Research 4 s.h.
Minimum total 30 s.h.

Educational Specialist
Advanced science education 18 s.h.
History/philosophy/epistemology of science 10 s.h.
Major area of science 18 s.h.
Practicum 4 s.h.
Applications of science 4-6 s.h.
Research 6 s.h.
Minimum total beyond master’s degree 30 s.h.

Doctor of Philosophy
Advanced science education 20 s.h.
Research 8 s.h.
Major area of science 28 s.h.
*Correlative studies 16 s.h.
Minimum total beyond master’s degree 72 s.h.

Iowa-UPSTEP is a special program for talented secondary school students. The student registers as a special UI undergraduate student prior to high school graduation. The program includes research participation, enrichment courses, and/or field experiences.

(*See “Secondary Education” in the “College of Education” section of the Catalog.)

Science Education/LIBERAL ARTS 217
Special Programs
Iowa-ASSIST

Iowa-ASSIST is a special program in science education which involves 600 in-service teachers each year in special curriculum development and implementation seminars. Summer and academic year workshops provide the basic mode of operation for the program. Associated with Iowa-ASSIST is a materials center which provides printed and laboratory materials for workshops and school program implementations.

In addition, Iowa-ASSIST administers a fall Science and Education Conference that attracts more than 300 teachers and students from Iowa schools; sponsors a spring Science and Humanities Symposium, jointly with the U.S. Army Research Branch, for about 400 high-ability students and their teachers; sponsors several conferences for the improvement of science teaching and public awareness of science-curriculum issues; and each summer sponsors a special workshops utilizing external authorities and enrolling 200 teachers, supervisors, and administrators.

Chautauqua Short Course Programs

The Science Education Center also operates the NSF-supported and JABS-organized Chautauqua Short Course programs for college science teachers and college students of science are involved in such continuing education activities.

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
- Individualized learning
- Educational technology
- Computer-assisted learning
- Simulation systems
- Classroom interaction studies
- Creativity

Plagiarism detection psychology
Cross-cultural experiences
Health education
Instructional psychology
Teacher behavior
Mathematical activity
Inquiry processes
Instructional modes
Concept formation
Adaptation X Treatment Interaction (ATI)
Attitudinal and other effective outcomes of instruction
Classroom sociometrics and climate

International Programs

Another dimension of the Science Education Center is its emphasis upon international issues. A sizable number of foreign students is 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 Physics Building 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 library; a laboratory; and a counseling center. A suite of offices for student program activities; space for the elementary school science methods course; and two large teaching laboratories for the foundations of science sequence.

Third-floor facilities include an interactive curriculum and secondary methods laboratory; a curriculum and materials resource center; an office for coordinating Iowa-ASSIST; a model in-service program for assisting schools in implementing new national curriculum programs in Iowa schools; and a resource center including living and expendable materials.

The seventh floor includes central offices for the history and philosophy of science of the science education and secondary school teacher education programs; a self-instructional laboratory including laboratory and audiovisual materials; a large seminar room used as an instructional center for some of the secondary teacher education sessions, including many facets of the Iowa-UPSTEP model; multiple offices for graduate assistants; 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. The College of Education offers many basic courses in science education for a list of specific offerings, inquire at the Science Education Program Office.

For Undergraduates

For Graduates

For Undergraduates and Graduates

101:22 Societal and Ethical Applications of Earth Science Concepts and Issues

Review of major ethical principles of the earth sciences, with emphasis on current applications in today's world.
Social Studies Education

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 established by the North Central Association of Colleges and Secondary Schools.

Major requirements for the B.A. degree in social studies education total 60 semester hours of credit earned in the seven departments cooperating in the social studies education program. Distribution of the coursework is as follows: 12 semester hours in history; 12 semester hours each in economics, political science, and sociology; at least 9 semester hours in geography; and 9 semester hours in anthropology, or psychology.

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 research 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 work.

Admission Requirements
Transfer students must have earned a minimum grade-point average of 2.5 on all work done in the subjects of the seven cooperating departments in order to be admitted to the program. Approval of candidacy for the master's degree will be granted only to students who have a minimum 2.5 grade-point average in all college work undertaken in the cooperating departments.

Master of Arts
Some graduates of this program are classroom teachers and chairs of social studies departments in junior and senior high schools. Some are serving as curriculum consultants for school districts, while others are staff members in community colleges. A few have found the degree excellent preparation for their professional work in various correctional and penal institutions. For a small number, the master's program in social studies education has provided access to civil service positions at various levels of government.

The student may elect to take the master's degree with or without thesis, under either of two plans, both requiring 38 semester hours of credit in graduate courses.

In one plan the student completes at least ten semester hours of coursework in each of three of the seven cooperating departments, and may complete the remaining eight semester hours in one or among all of the three. In the other plan the student completes at least ten semester hours of coursework in two social sciences and not more than ten in education, and may complete the remaining eight semester hours in either or both of his or her social science fields.

Both plans require at least nine semester hours of credit earned in courses numbered 200 and above, including one such course in each of the student's three fields of emphasis. All candidates must also complete 98:201 Individual Instruction in Social Studies Education and/or 98:202 Seminar: Social Studies Education. The candidate must pass an oral and written comprehensive examination. The program offers a wide variety of educational experiences, depending on the candidate's field of study. Possibilities include small group instruction, seminar work, independent study in reading, computer experience, internships, and laboratory work.

Admission Requirements
A student wishing to major in social studies education for a master's degree must have earned at least 30 semester hours of undergraduate credit in one area of social studies at an accredited institution, and must have a minimum grade-point average of 2.75 on all work undertaken in social studies up to the time of application. After declaring a social studies education major, the M.A. candidate must maintain at least a 2.75 grade-point average.

Doctor of Philosophy
Some graduates of the social studies education doctorate 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 other academic disciplines on large public university campuses. Many are engaged in educational policy programs in colleges and universities, while others are college instructors in their areas of academic concentration.

The program consists of a minimum of 90 semester hours of coursework and dissertation credit beyond the bachelor's degree, exclusive of all requirements established by the College of Education. These credits are to be distributed among two of the cooperating disciplines — anthropology, economics, geography, history, political science, psychology or sociology — and professional education. Depending upon the background and needs of the student, the coursework may vary. The total coursework must include coursework in at least two disciplines from the following areas: public administration, public policy, social work, sociology, urban studies.

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 graduate students in curricular revision.

Courses

73021 Individual Instruction in Social Studies Education - 1.5h. Individualized readings, field studies, and individual projects. Focus on the history and social science of one or more related topic areas.

73022 Seminar: Social Studies Education - 1.5h. Reading and discussion of significant developments in philosophy, curricular content, and social studies education. Prerequisites: consent of instructor; otherwise full semester. Same as EED 7321.

Social Work

Director: Ruth A. Brandwein

Associate Professor: Ralph E. Ayers

Faculty: Professor Rapp, E. Anderson, H. Wayne Johnson, Thomas E. Walsh, and T. C. Clark. In addition, Senior Professor Emeritus Dr. E. Anderson and Senior Professor Emeritus Dr. J. Brandwein are special advisors. Senior Professor Emeritus Dr. E. Anderson, Professor Emeritus Dr. J. Brandwein, and Professor Emeritus Dr. J. Brandwein are special advisors.

Social Work

Director: Ruth A. Brandwein

Associate Professor: Ralph E. Ayers

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Undergraduate students majoring in social work must satisfy the general College of Liberal Arts requirements, excluding the social science core. The following courses are required for the major:

**Freshman/Sophomore Years**

30:1 Introduction to American Politics 4 s.h.
or
30:110 The American Political System 4 s.h.
31:1 Elementary Psychology 4 s.h.
or
31:3 General Psychology 4 s.h.
34:1 Introduction to Sociology: Principles 4 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 3 s.h.
42:143 Social Work Program and Policy 3 s.h.
42:144 Social Work Research 3 s.h.
42:119 Social Work and Discrimination 2 s.h.
or
42:127 Social Work and Racism 2-3 s.h.
or
Approved course from another department (see School of Social Work for list) 4 s.h.
42:171 Social Work Practice II 3 s.h.
42:176 Social Work Processes 2 s.h.
42:183 Field Experience 8-12 s.h.
42:189 Field Experience 1 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 core 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 C 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 protection and for advanced social work practice either as generalists or in one of three concentrations. The community state 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 helping human service organizations responsive to people; understand the 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 graduate study completed before admission to the program. Students who have completed an accredited undergraduate major in social work are eligible for a 12-hour reduction of credit requirements. With their advisers, who play an active role in assisting students in their educational planning, students should explore additional mechanisms for waiving courses.

The School operates a 12-month program. The summer term is considered one semester. Full-time students may enroll for a maximum of 13 semester hours each semester. Therefore, students entering the program with an accredited undergraduate social work degree and/or with advanced standing may expect to complete the program in three or four semesters (i.e., the summer or fall semester following fall admission). Students requiring the more 80 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 on a 4-point scale, must be approved for M.S.W. candidacy, and must successfully complete a final exam of the comprehensive examination the Graduate College generally requires. The student may elect a thesis option for credit, and can substitute the thesis work for the final examination project. The following is an outline of the M.S.W. degree requirements:

**Core courses:**

42:140 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.

Total 12 s.h.

**Other required courses:**

42:254 Interpersonal Communication and Change: Advanced Practice 3 s.h.
42:240 Human Services Administration 3 s.h.
42:201 Community Organization 3 s.h.
or 42/274 Social Planning 3 s.h.
42/268 Advanced Social Work Research 2 s.h.
42/127 Social Work and Racism or 42/119 Social Work and Discrimination 2 s.h.
42/270 Social Change, Social Development, and Social Work 2 s.h.

Generalist option: an additional 3 semester hours in each concentration 9 s.h.
Concentration option at least three additional courses in the concentration 9 s.h.
Practice and practicum seminar 14 s.h.
Final examination project/thesis 0-6 s.h.
Electives 4-12 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 basic knowledge and skills in all three concentrations. It is especially suitable for students who expect to practice in rural communities where they will be expected to perform a variety of functions. It may also be a suitable choice for students who want to focus on a particular field of practice rather than a particular level or system of intervention. Generalists are required to take 6 semester hours of coursework in each concentration, including the required advanced practice course in each. Other courses which can serve to meet the requirement will be made available upon entry into the program. Practicum will include some opportunity for practice experience at each system level.

The concentration in individual, family, and small group services prepares students for intervention with these client groups. It seeks to develop practice competence in students both as enablers of personal change and as brokers/advocates for individuals and families. Topics include family law and welfare, work with children, marriage and family counseling, and theories of personality.

The concentration in organizational practice is designed to develop practice competence for a variety of administrative roles in human service agencies as well as to enable students to act effectively in making such organizations more responsive to their clients. Topics include program evaluation, grants development, administrative law, and human and family policy.

The social work concentration is designed to prepare students for intervention in neighborhoods, communities, and social institutions. An international perspective is part of this concentration. It focuses both on developing more humanitarian forms of organization and social norms, and on mobilizing the alienated and oppressed to obtain equity. Topics include international social welfare, social planning, women's roles, and organizational change.

Concentrators complete a minimum of 6 semester hours of practice in their concentration. In either the advanced research course or the final project, most must be related to their concentration.

Satellite Centers

In addition to offerings on the Iowa City campus, the school offers both class work and practicum learning in Des Moines, Sioux City, and Iowa City satellite centers. Regular School of Social Work faculty are available for travel and to teach all required courses.

The centers have three major purposes: to enrich the educational programs of full-time students by providing greater diversity of practice opportunities; to make pursuit of the graduate degree in social work geographically available to students unable to relocate to Iowa City; and to provide continuing education opportunities throughout the state for non-degree students.

For full-time students, the general plan is to begin the program in the fall semester in Iowa City. Depending on whether the student chooses a concurrent (three semesters) or block (two semesters) practicum, practicum begins in the second or third semester in the program. 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 fine practicum opportunities are available in state government offices, child and family agencies, mental health programs, and a variety of other settings.

The Quad Cities Center is located on the Mississippi River in Davenport, 60 miles from Iowa City. As part of the Quad Cities metropolitan area of 718,000 people, this center also provides a wealth of practicum opportunities unavailable in Iowa City. Regional and advocacy 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 close to the others in that a full program is unavailable there.

Intensive, short-term, split session courses are offered both the Iowa City campus in the summer to facilitate 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 but the program allows single parents, working people, and others unable to pursue a degree on a full-time basis to complete the program over a period of time not less than seven semesters (24 months) or more
Graduate Admissions

The criteria for admission to 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 letter-graded graduate coursework (exceptions noted below);

Three positive letters of reference, including one regarding academic abilities and one or more regarding social services or other work experience; and

A personal statement from the applicant about his or her interests and career objectives. In addition, he or she promises that applicants for admission to the M.S.W. program have two years of work experience in social services; it requires personal interviews with applicants for admission to part-time study; and it requires that 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 with grade-point averages 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 establish a heterogeneous student body, it makes special efforts to admit students representing a diversity of ethnic, racial, and socioeconomic backgrounds. Students with special conditions 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.

Continuing Education

Through the Saturday and Evening Dialect Program in Iowa City and the School of Social Work's Des Moines, Cedar Cities, and Siouxland Centers, non-degree students may enroll for courses and workshops. Twelve credits of graduate coursework may be applied to the master's degree requirements for students who later enroll in the program.

Coursess

Primary for Undergraduates

4221 Introduction to Social Work 3 s.h.
Social welfare as an academic institution; settings and viewpoints of social work practice; paragraph of social work history, historical developments in the delivery of social services, social welfare paradigms. Prerequisite: 3 credit hours in Basic Math. Credit/no credit S/U. 4222 Introduction to Social Work 3 s.h.

Determined characteristics of social work, social problems and programs, and practice with the client group, theoretical trends in social work, general health dimensions, general competence, institutional, regional, and national programs, etc. Prerequisites: pass in one of the above.

4227 Social Work Problem 3 s.h.
Emotional problems related to individual, family, and social settings; techniques of problem development and management; stress, anxiety, and depression, with emphasis on their application in agency practice. Requires 40 hours of volunteer experience. Prerequisites: 4222, 6481-01.

4270 Social Work Process 3 s.h.
Processes of social change used by social workers with individuals, groups, and communities; interviewing and assessment techniques, social work practice with groups and institutions, techniques of human resources management. Prerequisites: 4243, 4245, 4246, 4247, and one of 4222, 6481-01, 6483, or 6484. Co-requisites: 4243, 4246, 4247.

4281 Field Experience Seminar 1 s.h.
Special seminar for planning and organizing experiences for the students to participate in a variety of placements and facilitating the integration of learning from prior courses with 138 credit hours. Prerequisites: 138 credit hours. Co-requisites: 4281.

4291 Individual Studies 4 s.h.
Individual or group studies, supervised by an instructor. May be repeated as credit hours. Prerequisites: 4222. 6481-01, 6483, or 6484.

4292 Field Experience 3 s.h.
Supervision of field experience for students working in selected social welfare agencies and organizations. May be repeated as credit hours. Prerequisites: 4281. Co-requisites: 4281.

4294 Seminar 3 s.h.
d elective course for social work majors in areas of special interest and application in selected social welfare areas. May be repeated as credit hours. Prerequisites: 4281. Co-requisites: 4281.

For Graduates and Undergraduates

Courses with numbers preceded by asterisks are required in the M.S.W. program.
41311 Human Sexuality 3-0-3
Phenomenology and psychobiological aspects of human sexuality. Historical, philosophical, and sociocultural issues. Prerequisite: 43211 and consent of instructor. 3-0-3

41313 Community Mental Health 3-0-3
Theories of mental health disorders and the history of the mental health movement, mental health restoration and public policy, and mental health practice. Prerequisite: 41310 or consent of instructor.

41318 Social Work and Disability 3-0-3
Examination of policies and issues related to discrimination against severely disabled subgroups within American society, such as disabled athletes, women, elderly, children, physically handicapped, mentally retarded, and homophobes. Prerequisite: 41310 or consent of instructor.

41321 Social Work Practice in Public Social Services 3-0-3
Types of services which occur in the public social service field include income maintenance, labor and family welfare, adoption, protective services, youth services. Prerequisite: 41320; graduate standing, or consent of instructor.

41327 Social Work and Racism 3-0-3
Examination of racism's minority culture, manifestations of personal and institutional racism, historical roots of racism, methods of opposing racism, racism in social service delivery systems and organizational mandates. Prerequisite: junior, senior, or graduate standing.

41328 Addictions and the Social Worker 3-0-3
Public and private treatment methods, attitudes and public policy. Description and classification of the disease, etiology, pharmacological, psychological, and sociocultural aspects, abstinence and the law, shame among women, teenagers, and in the family.

41340 Human Behavior in the Social Environment 3-0-3
Introduction to the social work student in various theoretical conceptualizations of the purposes of human behavior; see social systems approach as the organization of the course. Prerequisite: 42020, graduate standing, or consent of instructor.

41341 Social Work Practice I 3-0-3
Introduces student to a general framework for social work practice with emphasis on social work practice techniques and with particular attention to the developing professional social worker. Prerequisite: 42020 and 42030, graduate standing, or consent of instructor.

41342 Social Work Practice 2 3-0-3
An introduction to a general framework for social work practice II. Emphasis on advanced practice techniques and individualized social work practice techniques. Prerequisite: 42020 and 42030, graduate standing, or consent of instructor.

41346 Social Work Research 3-0-3
Social work research skills, research design and methodology, sampling techniques, sampling error, data collection, reading and interpreting statistics applied to social work problems. Prerequisite: 42020, graduate standing, or consent of instructor.

41356 Global Work Future 3-0-3
Will discuss global issues.

41357 Political World Futures 3-0-3
Analysis of preferences about world future in relation to social work practice. Exploration of future trends in social work practice, emphasizing different preferences for future social policy.

41370 Law and Social Service Agencies 2-0-2
Administrative law for social workers; the difference between the legal and ethical perspectives of law, and the process and function of effective strategies for the survival and expansion of human agency in social service. Prerequisite: 43210 and consent of instructor.

41371 Issues in Criminal Justice 2-0-2
Issues in the field of criminal justice, the conduct of criminal justice, the divergent diversity of issues, may be represented. Prerequisite: junior or senior standing.

41370 Group Training Process 2-0-2
Designed to enable students to understand selected group processes, skills of leadership, and their own interpersonal skills. Emphasizes participation in a structured group experience which focuses on groups for personal development and as a site for training, same as 41360.

41371 Criminal Behavior 3-0-3
Theories of criminal behavior and studies of criminals, focusing on theories of crime causation; how criminals are labeled and treated. Prerequisite: consent of instructor.

41372 Criminal Behavior 3-0-3
Theories of criminal behavior and studies of criminals, focusing on theories of crime causation; how criminals are labeled and treated. Prerequisite: consent of instructor.

Workshop on selected topics concerning the social work profession and the role of social work practice. Prerequisite: consent of instructor.

Workshop on selected topics concerning the social work profession and the role of social work practice. Prerequisite: consent of instructor.

41375 Social Work Practice in the Social Worker's Role and Social Worker's Role 2-0-2
Psychological and social work practice in the areas of human behavior, psychological and social work practice, role development and social work practice, social work practice in the existing social order. Prerequisite: consent of instructor.

Primarily for Graduates

These courses are not available every semester.

42310 Integration Seminar 3-0-3
Seminar for graduate students of the same academic year with the purpose of developing social skills and emotional understanding leading to social integration.

42311 Community Organization 3-0-3
Concepts and principles of social organization in community and organizations, the place of community organization within the social work profession, development of skills in analyzing issues relative to social organization, and in developing and implementing appropriate strategies for growth and social organization standing or consent of instructor.

42312 Introduction to Sociology for Social Work Students 3-0-3
Introduction to sociology for social work students.

42314 Introduction to Sociology for Social Work Students 3-0-3
Introduction to sociology for social work students.

42316 Group Leadership in Human Sexuality 2-0-2
Theoretical issues and research findings, as they relate to social change in the group process and the group dynamics of the group leader and group member. Prerequisite: 43211, consent of instructor.

42318 Social Services in Industry 2-0-2
Incorporation of the social work function into the work force and selected groups within it: youth, women, and elderly, and the employment of social workers in industry and for industry and industry workers and their families.

42319 Family Law 2-0-2
Principal legal aspects of family life, including marriage, divorce, and separation, inheritance rights, child custody, and support, property, legal aspects of family discipline, guardianship, adoption, and the law affecting family relationships.

42320 Social Policy Issues in Health Care 2-0-2
Analysis of major health issues in the United States, with examination of other health care systems, the governmental programs, health care finances, legal issues in health care, and the social work role in the change process.

42321 Group Process 2-0-2
Experiences in group process to increase knowledge of self as a source of group process and of other significant areas as these relate to persons involved in group center or personal counseling groups. Prerequisite: 42020, and 42030, or equivalent.

42325 Intergenerational Communication and Change Advanced Practicum 2-0-2
Philosophy of intergenerational communication and change, examination of communications within intergenerational family systems, development of skills in analyzing situations and interpersonal skills, and family therapy.

42330 Sociology of Health Care 3-0-3
Survey of sociological concepts and techniques of analysis that are applied to the social organization of health care and to the social structure of the health care system. Prerequisite: consent of instructor.

42331 Social Welfare Policy 2-0-2
Policy implications of existing social welfare legislation, major areas of current welfare policy issues, and the role of the social worker in the existing welfare policy issues. Prerequisite: consent of instructor.

42334 Professional and Personal Ethics for Social Workers 3-0-3
Professional and personal ethics for the practice of social work.

42335 Professional and Personal Ethics for Social Workers 3-0-3
Professional and personal ethics for the practice of social work.

42336 Seminar: Theories of Personality 2-0-2
Theories of personality development in light of recent advances in personality theory, the use of personality development in the treatment of mental health problems.

42337 Seminars in Social Work Practice 2-0-2
Seminars in social work practice.

42340 Social Work Practice in the Health Field 2-0-2
With the goal of increasing professional and administrative skills in the health field.

42341 Social Work Practice in the Health Field 2-0-2
With the goal of increasing professional and administrative skills in the health field.

42343 Social Work Practice in the Health Field 2-0-2
With the goal of increasing professional and administrative skills in the health field.
Sociology/LIBERAL ARTS

40:331 Great Postwar

Designed to acquaint students with some theoretical and practical aspects of group psychotherapy; presentation of some of the major schools; review of relevant research. Prerequisite: Psychology 103 or

40:332 Marital Counseling

40:335 Social Work

Study of the role of social institutions and norms in the determination of social behavior. An introduction to the social work profession. Prerequisite: Psychology 103 or

40:334 Assessment and Remediation of Children's Problems

40:341 Social Work Research

40:340 Seminar in Social Work

40:342 Internship in Social Work

40:343 Supervision and Consultation in the Human Services

40:344 Social Development

40:345 Advanced Social Work Research

40:346 Advanced Social Work Research (S).


40:348 Social Change

40:349 Organizational Change

40:350 Social Change

40:352 Women and Social Change

40:353 Social Theory

Social Theory

Sociology

Social science teaching in secondary schools. The degree equips the student for study for advanced degrees in sociology which qualify the graduate for college or university teaching and academic, private, or governmental research positions. The program also provides a good background for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and welfare areas.

Undergraduate students majoring in sociology should plan their programs in consultation with a sociology adviser and an adviser from the student's intended career field. In 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 28 semester hours of coursework in sociology, including:

34:1 Introduction to Sociology: Principles

34:2 Introduction to Sociology: Problems

34:10–11 Theory, Research, and Statistics

Electives

The student should complete the two-semester theory, research, and statistics coursework early, to maximize his or her capacity to benefit from the other sociology courses.

In addition to the sociology requirements listed above, the B.S. program in sociology requires the following:

34:12 Logic of Social Science

26:104 Introduction to Logic or

Social science teaching in secondary schools. The degree equips the student for study for advanced degrees in sociology which qualify the graduate for college or university teaching and academic, private, or governmental research positions. The program also provides a good background for graduate or professional study in social work, urban planning, law, criminal justice, social policy, and welfare areas.

Undergraduate students majoring in sociology should plan their programs in consultation with a sociology adviser and an adviser from the student's intended career field. In 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 28 semester hours of coursework in sociology, including:

34:1 Introduction to Sociology: Principles

4. a.h.

34:2 Introduction to Sociology: Problems

4. a.h.

34:10–11 Theory, Research, and Statistics

6. a.h.

Electives

12. a.h.

The student should complete the two-semester theory, research, and statistics coursework early, to maximize his or her capacity to benefit from the other sociology courses.

In addition to the sociology requirements listed above, the B.S. program in sociology requires the following:

34:12 Logic of Social Science

3. a.h.

26:104 Introduction to Logic or

3. a.h.

26:104 Introduction to Philosophy or

3. a.h.

220:25 Elementary Probability and

3. a.h.

One of these two combinations: 29M:10 Fundamentals of College Mathematics I

4. a.h.
The professional courses required for certification (23 semester hours).
Sociology courses taken to fulfill the social science core requirements may also be counted toward the sociology teaching major. Other social science or history courses taken to satisfy the social science or historical-cultural core requirements may not be counted toward the hours required in related fields.

Honors
Students who wish to graduate with honors in sociology must be admitted to the honors program, have a departmental honors advisor, include 34:190 The Development of Modern Social Theory and 34:199 Honors Research in their programs, and take an oral examination upon completion of their honors research.

Graduate Programs
The graduate programs in sociology are directed toward professional careers. Depending upon which program the student chooses, the master's programs prepare the student for doctoral studies or for professional positions applying sociology. The doctoral program has a research emphasis and primarily prepares sociologists for positions in colleges and universities or research in academic, private, or government positions. Opportunities for research, using survey, experimental, and observational methods, are available in the department.

Master of Arts
The M.A. degree in sociology requires 30 semester hours with thesis or 38 semester hours without thesis. The program without thesis is intended for persons who desire a terminal degree and for whom a wider range of course content is sociologically appropriate. All candidates for the M.A. degree must complete 34:201 History of Sociological Theory, 34:202 Sociological Theory, 34:214 Elementary Statistics and Data Analysis, and 34:216 Sampling, Measurement, and Observation Techniques, with grades of B or higher.

M.A. in Criminal Justice and Corrections
This program is designed for individuals desiring to prepare for careers in the criminal justice system. It provides the student with training in the social and behavioral sciences, the administration of justice, counseling techniques, and administrative procedures. The program is administered by the Department of Sociology and has a strong sociological emphasis. A limited number of students are admitted to the program each year, so a low faculty-student ratio is maintained. Internships are available with local criminal justice agencies. This program requires a minimum of 45 semester hours and a research paper.

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 after entering the joint program toward the 90 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 Department of Sociology may award up to 12 hours of law coursework toward the M.A. degree. This cross-credit allows a student to receive the J.D. and the M.A. by taking less coursework than would be necessary if the two degrees were pursued independently. This program is only 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-level coursework, including the pre-M.A. courses 34:202 Intermediate Statistics and Data Analysis and 34:217 Theory and Research Design. Candidates must also pass comprehensive examinations and write a dissertation.
All doctoral candidates are examined in the basic tool areas of sociology—theory, history of theory, methodology, and statistics. In addition, each is examined on one major and one minor area chosen from among the areas currently represented by the faculty, such as social psychology, deviance, criminology, family, social stratification, organizations, theory, methods, and statistics.

A detailed statement of regulations for graduate study is 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 terminal score of 1100 from the quantitative plus verbal sections of the Graduate Record Examination. 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 Graduate Record Examination (GRE) Aptitude Test, and the applicant's statement of reasons for pursuing advanced work in sociology. The department has no specific graduate course requirements for admission, but a background in the social sciences with some mathematical training is useful. A foreign language is not required for admission and there are no foreign language requirements for either the M.A. or Ph.D. degrees in sociology. Inquiries concerning admission should be directed to the Chair, Admissions Committee, Department of Sociology.

Admission to the M.A. program in criminal justice and corrections requires a B.S. or a B.A. degree, a grade-point average of 2.75 and a total score of 1000 from the quantitative plus verbal sections of the Graduate Record Examination (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 full-time 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 work twenty hours each week for faculty members on either teaching or research assignments. The department may also offer tuition scholarships to some students.

Facilities
The department maintains a card punch and two interactive terminals for communicating with the University's main computer (IBM 370/168 and four PRIME 750s) and with the University's Hewlett-Packard 2000 educational computer. Also available for faculty and students are the facilities of the Center for Research in Interpersonal Behavior (CRIB), a data archive unit, and the Iowa Urban Community Research Center (UCRC). The CRIB facility includes a small-group laboratory complex with audiotape, videotape, and intercultural process recording equipment; programming equipment; and a shop for constructing apparatus. The data archives house the results of numerous surveys available to faculty and students for teaching and research purposes. The UCRC maintains a research library, data bank, and laboratory. Surveys in the data bank are accessible for secondary analysis. (See the "Research Activities" section of the Catalog.)

Courses
For Undergraduates Only
Courses open to freshmen without prerequisites: 24-1, 24-3, 24-10, 24-14, 24-15, and 24-16. All other undergraduate courses are open to freshmen with stated prerequisites.

Introduction to Sociology: History
Examination of how individuals are organized into groups in society through their participation in social institutions and the role that various factors play in determining social interactions. Co-requisites: 24-1, 24-3, 24-10, 24-14, 24-15, and 24-16. Prerequisite: 24-1 or consent of instructor.

Introduction to Sociology: Problems
Exposure to selected social problems, alternative solutions, and policy problems. Emphasis on theoretical and methodological issues. Co-requisites: 24-1, 24-3, 24-10, 24-14, 24-15, and 24-16. Prerequisite: 24-1 or consent of instructor.

Theory, Research, and Statistics
Introduction to basic statistical concepts, emphasis on descriptive statistics, the statement of research problems, and the design and implementation of a research project. Co-requisite: 24-1, 24-3, 24-10, 24-14, 24-15, and 24-16. Prerequisite: 24-1 or consent of instructor.

Theories of Society
Sociological theory and research on social organization. Prerequisites: 24-1, 24-3, 24-10, 24-14, 24-15, and 24-16. Prerequisite: 24-1 or consent of instructor.

Sociology of Social Change
An introduction to contemporary and historical sociology. Prerequisites: 24-1, 24-3, 24-10, 24-14, 24-15, and 24-16. Prerequisite: 24-1 or consent of instructor.
Minor

A minor in Spanish requires 16 semester hours of coursework in Spanish, including 10 semester hours at the 100-level. The seven courses listed above as not applicable toward the elective requirement for the Spanish major may not be applied toward the minor. No more than 3 semester hours of credit may be applied toward the minor from the following:

- 35:125 Introduction to Bilingualism
- 35:127 Chicano Literature
- 35:129 Introduction to Don Quijote
- 35:140 Introduction to Basque Language and Culture
- 35:142 Basque Language and Culture II
- 35:145 Chicano Language and Culture for Teachers
- 35:159 Latin American Studies Seminar

Students who plan to use a Spanish minor in teaching on the secondary level are encouraged to complete language study through 35:137 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 eight weeks in the summer. A limited amount of credit earned in these and other foreign study programs may be applied toward the requirements for the major or minor in Spanish.

Honors

Admission to the honors program in Spanish requires a minimum 3.0 overall grade-point average and a 3.5 average in Spanish. Graduation with Honors in Spanish, in addition to the 30 semester hours major described above, 6 semester hours earned in 35:211-222 Honors Literature and/or 35:213-224 Honors Spanish Language, in honors essays 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.

The undergraduate major in Portuguese requires these courses, or their equivalents, for a total of 24 semester hours of coursework beyond the second-year level.

Language (6 s.h.)

- 36:117 Advanced Portuguese I 4 s.h.
- 36:118 Advanced Portuguese II 4 s.h.

Literature (6 s.h.)

- 36:106 Brazilian Literature I 3 s.h.
- 36:108 Brazilian Literature II 3 s.h.

Civilization (6 s.h.)

- 36:115 Brazilian People and Culture 3 s.h.
- 36:116 Modern Portuguese 3 s.h.

Electives (4 s.h.)

- 36:103 Modern Brazilian Fiction I: Short Story
- 36:104 Modern Brazilian Fiction II: Novel
- 36:107 Introduction to Portuguese Literature 3 s.h.
- 36:108 Black Literature of Portuguese Expressions 3 s.h.
- 36:109 Nineteenth-Century Brazilian Novel 3 s.h.

High School Certification

Spanish majors who wish high school certification must complete 35:157 Spanish Phonology I in addition to the requirements listed above. Several courses in the College of Education are also required, as is one semester of practice teaching, taken as the senior year.
Minor in Portuguese
The undergraduate minor in Portuguese consists of 18 semester hours in Portuguese, including 6 semester hours of 100-level courses.

Offerings for Undergraduate Nonmajors
Undergraduate students in other disciplines may meet part of the College of Liberal Arts literature core requirement with 35:6 Contemporary Latin American Narrative, readings in English. The department offers several other literature and cultural survey courses which are taught in English and are of general interest.

English-language courses in Hispanic literature are crosslisted with courses for the major in letters, and further interdisciplinary development of this kind is anticipated.

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 political, economic, and social life of Latin America, essential to a certificate in Latin American Studies. Students receiving this certificate must have sufficient competency in Spanish or Portuguese to be able to do background readings in the language before enrolling in the required senior seminar. For further information on the Latin American Studies Program, the certificate, and its new minor, see "Latin American Studies Program" in this section of 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 Coursework
Spanish phonology (either 35:157 Spanish Phonology I or phonology component of 35:208)
35:208:209 Graduate Spanish Linguistics I 4 s.h.
35:218 Cerantos' Don Quijote 3 s.h.
35:233 Seminar in Teaching 1 s.h.
35:251 Medieval Spanish Literature I 3 s.h.
35:263 Historical Ibero-Romance Language I 3 s.h.
ConfeR in Golden Age Literature 3 s.h.
Course in Modern Spanish literature 3 s.h.
Courses in Spanish American Literature 6 s.h.
Electives bringing student's total to required minimum of 28 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 15 graduate hours during the fall or spring semesters, and 8 graduate hours during the summer sessions. One-quarter and one-third time teaching assistants are permitted to register for the maximum study loads. One-half time teaching assistants may register for not more than 10 semester hours in the fall or spring semesters, and for not more than 8 during the summer sessions. Additional hours may be taken only with Graduate College approval.

Transfer Credit
A maximum of 9 semester hours of graduate credit in approved courses may be transferred from other institutions toward the 36-semester-hour requirement 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 from two of these three areas: I, Spanish linguistics; II, Medieval literature or Golden Age literature; and, III, Modern Spanish literature, Spanish American literature or Luso-Brazilian literature.

Doctor of Philosophy in Spanish
Two doctoral programs are available. One is dedicated to Hispanic literature. Before his or her comprehensive examination the candidate must become well acquainted with another Romance language and literature (a Portuguese-Brazilian program is especially recommended), complete the equivalent of a year of college Latin, and demonstrate a reading knowledge of another approved foreign language.

Qualifying examinations are to be taken during the second semester of residence by all students whose M.A. work was done at other institutions, consist of at least two hours 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 Spanish language and literature with emphasis on language. Before his or her comprehensive examination, the candidate must have completed a course in linguistics and the equivalent of three semesters of college Latin, and demonstrated a graduate-level knowledge of a second approved foreign language and a reading knowledge of a third approved foreign language.

In both programs, coursework and individual reading must be designed to give the candidate a thorough knowledge of the Spanish language, its literature, and related civilization, from...
medieval to modern times; to provide
an integrated experience is a second
Romance-language requirement and to develop
the candidate's capacity for critical analysis
of literary texts.

The following theme together with the
departmental (non-course) reading list are
considered a basic minimal program for the
degree. The requirement may be
fulfilled by acceptable courses at
another institution 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

35:251 Medieval Spanish
Literature I 3 s.h.

One additional course in Medieval
Spanish literature 2 s.h.

35:253 Historical Iberian-Romance
Language I 2 s.h.

One additional course in Spanish or
Romance linguistics 2 s.h.

Golden Age Literature

35:255 Dramas of the Golden Age
3 s.h.

35:256 Cervantes's Don
Quixote 3 s.h.

One of the following:

35:257 Fiction of the
Golden Age 3 s.h.

35:258 Lyric Poetry of the
Golden Age 3 s.h.

35:259 Nonfiction Prose of the
Golden Age 3 s.h.

35:252 The Picaresque Novel
3 s.h.

Modern Pentinuclear 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 or more of the
courses, provided the two-century stipulation is
met:

35:260 Nineteenth-Century Spanish
Novel 3 s.h.

35:261 Nineteenth-Century Spanish
Poetry and Drama 3 s.h.

35:262 Twentieth-Century Spanish
Novel 3 s.h.

35:263 Twentieth-Century Spanish
Essay 3 s.h.

35:264 Twentieth-Century Spanish
Drama 3 s.h.

Latin American Literature

Four courses (12 semester hours)
selected from a minimum of three of the
following areas:

Area A

35:245 Novel of the Mexican
Revolution 3 s.h.

35:271-273 Iberian American Novel of
the Twentieth Century I 9 s.h.

Area B

35:232 Spanish American Essayists and
Thinkers 3 s.h.

35:239 Post-Modernist Spanish
American Poetry 3 s.h.

35:242 Spanish American Literature of
the Nineteenth Century 3 s.h.

35:243 Spanish American Colonial
Literature 3 s.h.

35:218 Images of Women in Latin
American Literature 3 s.h.

Area C

35:244 Spanish American Poetry of the
Twentieth Century 3 s.h.

35:257 Modernismo 3 s.h.

35:275 Latest Currents in Spanish
American Poetry : Post-Prewar 3 s.h.

Area D

35:251 Spanish American Drama 3 s.h.

35:245 Spanish American Short
Story 3 s.h.

35:254 Spanish American Short Story of
Fantasy 3 s.h.

Area E

Course in Brazilian literature 3 s.h.

Contemporary Language

35:206-208 Graduate Spanish
Linguistics I-IV 6 s.h.

35:167 Spanish Phonology I
3 s.h.

or Phonology component of 35:208

Literary Theory

One of the following:

35:217 Literary Theory and Explication
of Texts 3 s.h.

35:284 Types of Modern
Criticism 3 s.h.

Professional Training

35:211 Research Methods and
Bibliography 2 s.h.

35:233 Seminar in Teaching 1 s.h.

Seminars

Two 300-level seminars in
literature 4 s.h.

Specialization

Students in program I desiring to
specialize in Medieval literature, Golden
Age literature, Modern Spanish literature,
Latin American literature, or another
approved area may be allowed to
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
Language

History of the Spanish
Language and Medieval
Literature

35:251 Medieval Spanish
Literature I 3 s.h.

One additional course in Medieval
Spanish literature 3 s.h.

35:253 Historical Iberian-Romance
Language I 2 s.h.

One additional course in Spanish or
Romance linguistics 2 s.h.

Comparative Linguistics

35:250 Comparative Romance
Linguistics 3 s.h.

Golden Age Literature

35:252 Drama of the Golden Age
3 s.h.
Modern Peninsular Literature
One of the following:
35:223 Nineteenth-Century Spanish Novel 3 s.h.
35:221 Nineteenth-Century Spanish Poetry and Drama 3 s.h.
One of the following:
35:223 Twenty-first-Century Spanish Poetry 3 s.h.
35:224 Twenty-first-Century Spanish Novel 3 s.h.
35:228 Twentieth-Century Spanish Essay 3 s.h.
35:241 Twentieth-Century Spanish Drama 3 s.h.

Latin American Literature
Three courses from at least two of the Latin American literature areas listed in Program I

Contemporary Linguistics
35:1ET Spanish Phonology 3 s.h.
or
Phonology component of 35:208
Graduate-level phonetics phonology 2 s.h.
35:208-209 Graduate Spanish Linguistics I-II 8 s.h.
Additional graduate language (excluding seminars below) 2 s.h.

Literary Theory
One of the following:
35:217 Literary Theory and Explanation of Text 3 s.h.
35:284 Types of Modern Criticism 3 s.h.

Professional Training
35:211 Research Methods and Bibliography 2 s.h.
35:233 Seminar in Teaching 1 s.h.

Seminars
Two 300-level seminars in language 4 s.h.

Ph.D. Comprehensive Examinations
The doctoral comprehensive examinations assume a general knowledge of Spanish peninsular and Spanish American literature 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 choosing the program with emphasis on languages take comprehensive examinations in two language fields and one literature field, or, with permission of the department, in three language fields. The literature field may be either Peninsular or Hispanic American.

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 three-hour written examinations are administered, followed by a two-hour and four-hour oral examination covering the candidate’s main field of study (86 minutes), the remaining fields (60 minutes total), and the Ph.D. reading list (15 minutes).

Financial Aid
Teaching and research assistantships are available to qualified graduate students. Normally, two years of each support are available for the completion of a master’s degree, and three years beyond the required M.A. for the Ph.D. As long as a graduate student’s studies and performance meet departmental standards, he or she will continue to receive support over a reasonable period of time, but usually not over five years. A student wishing financial support should apply directly to the departmental office.

All graduate students, including those at 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 shortwave radios, tape recorders, record players, soundproof recording rooms, two drill rooms with 48 dual-channel tape recorders providing a simultaneous master dupliote and student record, an electronic classroom, a soundproof work room, 540 and 70mm projection equipment and facilities, and a library of tape and disc recordings. The department offers its majors a specific course in language laboratory procedures.

The department sponsors a 30-minute Spanish-language program, “ Succesos en Espaiol y Portugal,” (”Happenings in Spanish and Portuguese”) broadcast weekly over University radio station WUIA.

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 study in Spanish will be placed in a third- or fourth-semester class. Prospective and entering students should consult a departmental advisor. Students wishing a more advanced placement may take the placement test. Transfer students who have taken college Spanish at another institution 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 or its equivalent is a prerequisite.

101 Elementary Spanish 3 s.h.
102 Elementary Spanish II 3 s.h.
103 Intermediate Elementary Spanish 4 s.h.
A course that carries 4 s.h. is required for degrees requiring 144 credit hours of college-level foreign language.
104 Spanish World 4 s.h.
Designed to introduce the broad diversity of Hispanic cultures in Latin America, with some
Portuguese Courses

30.1 Elevar-se a Princesa (Portuguese)
4 h.

30.2 Gramática (Portuguese) Praticada
5 h. or equivalent.

30.3 Diplomar-se: Aspects of Brazilian Culture (Portuguese)
This course introduces students to the culture and history of Brazil, with an emphasis on modern Brazil. Prerequisites: 30.2 or equivalent.
4 h.

30.4 Vender-se: Business Writing in Portuguese (Portuguese)
This course focuses on developing the skills needed to write business letters, reports, and emails in Portuguese. Prerequisites: 30.2 or equivalent.
4 h.

30.5 Pronunciamento Pormenorizado
Prerequisites: 30.2 or equivalent.
4 h.

30.6 Portuguese Language Practice
For students who have completed 30.4 or equivalent. This course provides opportunities for students to practice their language skills in a variety of settings, including classrooms, laboratories, and community settings. Prerequisites: 30.2 or equivalent.
4 h.

30.7 Introdução aos Negócios da Cultura (Portuguese)
This course introduces students to the business culture of Brazil, with a focus on the role of culture in business practices. Prerequisites: 30.2 or equivalent.
4 h.

30.8 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.9 Introdução à Cultura da Cultura (Portuguese)
This course introduces students to the cultural context of Brazil, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.10 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.11 Introdução às Culturas da Cultura (Portuguese)
This course introduces students to the cultural context of Brazil, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.12 Introdução às Culturas da Cultura (Portuguese)
This course introduces students to the cultural context of Brazil, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.13 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.14 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.15 Introdução aos Negócios da Cultura (Portuguese)
This course introduces students to the business culture of Brazil, with a focus on the role of culture in business practices. Prerequisites: 30.2 or equivalent.
4 h.

30.16 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.17 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.18 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.19 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.20 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.21 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.22 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.23 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.24 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.25 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.26 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.27 Introdução aos Mundos da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.

30.28 Introdução ao Mercado da Cultura (Portuguese)
This course provides an overview of the Brazilian cultural industry, with a focus on the role of culture in society. Prerequisites: 30.2 or equivalent.
4 h.
the study of speech and hearing processes and their disorders.

Majors of advanced degrees in this field include clinical services for people with speech, hearing, or language problems, as well as research in areas such as communication disorders, rehabilitation, and advocacy. The department is affiliated with the American Speech-Language-Hearing Association and the National Academy of Sciences.

Undergraduate Programs

Since the minor's degree or its equivalent is the minimum level of preparation for persons seeking professional careers in this field, the undergraduate curriculum leading to B.S. or B.A. degrees in speech and hearing science do not qualify an individual to work professionally in 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:

3:16 Introduction to Speech and Hearing Processes and Disorders 3 s.h.
102-110 Articulatory and Auditory Phonetics 3 s.h.
111 Anatomy of Speech and Hearing Mechanisms 3 s.h.
112 Fundamentals of Speech Science 3 s.h.
3:13 Introduction to Hearing Science 3 s.h.
3:117 Psychology of Language I 3 s.h.
3:118 Psychology of Language II 3 s.h.
29:115 Physics of Sound and Music 3 s.h.

Graduate Programs

Master of Arts

The M.A. program in speech pathology and audiology may be a professional program to prepare the student for immediate placement in clinical service positions, or it may be a general program of graduate study leading to additional study for the Ph.D. degree. The programs for the professional M.A. are described in this section. The master's degree allows the student to meet the requirements for immediate professional placement, and the general M.A. program allows greater flexibility in individual program plans.

The M.A. candidate must have a background of undergraduate courses in speech and hearing science, psychology of language, and human behavior, or an equivalent documented by one of the graduate programs in the College of Liberal Arts.

Before his or her first registration in the program, the entering M.A. degree candidate must take preliminary comprehensive examinations covering the speech and hearing coursework and must have completed a minimum of 30 graduate hours of study. The results of these examinations provide the student and faculty advisor with a basis for developing a plan of study.

Professional Program

The professional M.A. program is designed to prepare clinicians in speech pathology and audiology. Students must be able to function independently in a variety of clinical settings. Persons completing the professional M.A. program meet all academic requirements for clinical certification by the American Speech and Hearing Association.

The department offers the professional program with various emphases. Each requires a minimum of 45 semester hours of graduate credit for a master's degree in this department. Candidates for the professional M.A. degree are not required to present a thesis, but students demonstrating research aptitude and interest are encouraged to...
All candidates preparing for the professional M.A. degree without thesis are required to take final written comprehensive examinations.

Requirements for the professional M.A. degree include the following:

A. All Majors

* 3:115 Nervous Process and Speech and Language 3 s.h.
* 3:150 Foundations of Clinical Management 3 s.h.
* 3:200 Audiology and Language Disorders 4 s.h.
* 7:244 Auditory Rehabilitation 3 s.h.

B. Audiology, General Clinical Emphasis

Courses listed under A. and

* 5:120 Fundamentals of Laboratory Instrumentation 3 s.h.
* 5:131 Audiology Instrumentation in Speech and Hearing 3 s.h.
* 5:140 Clinical Audiology 1 s.h.
* 5:240 Intro to Diagnostic Audiology 3 s.h.
* 5:241 Advanced Audiology 4 s.h.
* 5:245 Amplification in Hearing-Impaired 3 s.h.

C. Speech Pathology, Emphasis on Clinical Work in Elementary and Secondary Schools

Courses listed under A. and B. and

* 7:104 Remedial Methods in Speech and Hearing 3 s.h.

D. Audiology, General Clinical Emphasis

Courses listed under A. and

* 5:120 Fundamentals of Laboratory Instrumentation 3 s.h.
* 5:131 Audiology Instrumentation in Speech and Hearing 3 s.h.
* 5:140 Clinical Audiology 1 s.h.
* 5:240 Intro to Diagnostic Audiology 3 s.h.
* 5:241 Advanced Audiology 4 s.h.
* 5:245 Amplification in Hearing-Impaired 3 s.h.

E. Audiology, School Hearing Clinician

Courses listed under A and D. and

* 7:104 Remedial Methods in Speech and Hearing 2 s.h.
* 7:150 Laboratory Practice in Elementary School 3 s.h.

Requirements for Employment

A number of states, including Iowa, require a state license in speech 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 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 must meet the certification requirements of the states in which they plan to work. Completion of the following courses, in addition to those listed under C or E above, will meet the certification requirements of Iowa and most other states:

* 7:120 Exceptional Children 3 s.h.
* 7:170 Human Relations for Speech and Hearing Teachers 3 s.h.

Doctor of Philosophy

The Ph.D. program provides comprehensive training for the clinician and researcher in speech and hearing processes and their disorders, and offers intensive specialization in particular clinical problems in which the student may have special interest. The Ph.D. program is usually planned with specialization in speech-language pathology, audiology, speech science, psycholinguistics, or hearing science. Within each area the candidate and advisor may provide for further concentration through suitable selection of advanced seminars and research areas. Most students will find that their special interests lie in one or more of the listed areas.

The department encourages candidates with special interests and goals to develop individualized programs in consultation with their advisor and the faculty, provided they clearly define their purposes and present adequate plans of study.

In addition to the M.A. courses listed above, or their equivalents, the following coursework is recommended for the Ph.D. in speech pathology or audiology:

A. All Candidates

* 3:120 Fundamentals of Laboratory Instrumentation 3 s.h.
* 3:119 Language Acquisition 3 s.h.
* 3:219 Experimental, Psycholinguistics 3 s.h.
* 3:220 Advanced Laboratory Instrumentation 3 s.h.
Doctoral students who have not written a master's thesis must complete the equivalent of a master's thesis project before taking the comprehensive examination for the doctorate. All doctoral candidates must pass the comprehensive examination, usually before the end of the first year of full-time study in the Ph.D. program, and must successfully complete and submit a dissertation based on original research.

Admission and Appointments
The Department of Speech Pathology and Audiology has requirements for fall and spring 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 applicants for admission to graduate study in the Department of Speech Pathology and Audiology must complete the departmental information form, which can be obtained from the department chair.

Admission to 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. When undergraduate grade-point average above 3.0 does not ensure admission, the department admits few applicants with undergraduate grade-point averages below 3.0.

Completed applications must be received no later than February 1 for enrollment in the next fall semester. Since applications will be considered only in special situations, applications to begin study in the spring semester will be considered only under special circumstances and only if they are received no later than the preceding November 1.

Applicants to Ph.D. Program
Completed applications must be received at least two months prior to the beginning of the term for which application is made: approximately April 1 for summer session, July 1 for fall semester, November 1 for spring semester. However, if an applicant wishes to be considered for graduate appointment, the admission application must be filed by the deadline for appointment applications specified below. Applicants will usually be notified of action on their admission within six weeks after their applications are complete.

Applications for Graduate Appointments
The following information applies to all financial appointments administered by the department:

Graduate appointments usually begin only in fall semester. Students beginning study in the spring semester or summer session are considered for appointments for the following fall semester.

Sources on the Graduate Record Examination (GRE) Aptitude Test are routinely required for consideration for financial assistance. Appointment applications must be received by February 1 to insure consideration for an appointment beginning the following fall semester. Initial appointment offers are generally made between March 15 and April 1; however, the department continues to make offers after this time.

Clinical Facilities
The clinical training program derives great benefit from the fact that Iowa City is the health care center of the state, and that its health service facilities are readily available for the clinical training of students in speech pathology and audiology.

The University of Iowa Affiliated Speech and Hearing Services is accredited by the Pre-professional Service Board of the American Board of Examiners in Speech Pathology and Audiology. Affiliated services include: The University of Iowa Speech and Hearing Clinic; the division of speech and hearing in the Department of Otolaryngology and Maxillofacial Surgery; Speech and Hearing Services, University Hospital School; Speech and Hearing Services, Pediatrics—State Services for Crippled Children; Speech Pathology Service, Child Psychiatry;
Urban and Regional Planning

Program Chair: John W. Fuller
Assistant Chair: David J. Pankratz
Faculty: Associate Professor John W. Fuller, James J. Ennis II, associate professor Douglas B. Lee, associate professor Peter G. Parker, David 2. Pankratz, and others.

Planning encompasses the development of policy alternatives to improve the quality of life in cities and regions. Planners provide courses of action in response to a variety of problems and opportunities, and assess the likely outcomes of these actions. Planners are involved in diverse issues such as land use, transportation, housing, environmental quality, public services, human services, and economic development.

The University of Iowa planning program is a two-year master's degree program recognized by the American Planning Association. One of the few in the nation is approach planning from the perspective of policy analysis, the program is unique 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 necessary 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. Fields represented within the faculty, in the basis of previous training, include planning, architecture, public policy, economics, operational research, geography, engineering, political sciences, and law. The program's students have diverse undergraduate majors, including economics, political science, geography, architecture, landscape architecture, environmental sciences, engineering, anthropology, sociology, urban studies and planning, English, biology, history, classics, and philosophy. Because graduates students in the program number about 80, students get to know each other, and a significant portion of the educational experience takes place in informal discussion.

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 positions in all geographic regions of the United States and in several foreign countries.

Curriculum Structure

The planning curriculum comprises a 48-semester-hour, four-semester (plus internships) program encompassing two academic years. The curriculum is based on the general philosophy that planners will develop the theoretical and analytical skills that permit them to identify issues and recommend alternative ways for resolving these, as well as the professional skills (e.g., report writing, presentations and briefings), team management that allow them to function effectively in various organizational and political environments. Students thus become well-versed in such topics as economic theory, quantitative methods, formal presentations to political bodies, and citizen participation.

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 conceptual understanding of the issues 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 contain public utilities; a capability for identifying social goals and normative criteria for organizing society's resources; and analytical skills, both quantitative (e.g., statistical forecasting, surveys, regional analysis) and nonquantitative (e.g., scenario writing, impact assessment). In total, the course work is for 27 semester hours.

Core Courses

First Semester
102:205 Economics for Policy Analysis 3 s.h.
102:207 Planning Theory and Practice 3 s.h.
102:208 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.
102:218 Economics for Policy Analysis II 4 s.h.
102:220 Introductory Analytic Methods 3 s.h.
102:300 Laboratory in Information Systems and Presentation 2 s.h.

Third Semester
102:301 Field Problems in Planning 3 s.h.

Courses in the first semester are derived primarily from traditional disciplines (particularly economics, political science, and statistics), together with an introduction to the theories and practice of planning. Later courses require evidence to select, evaluate, and organize information and arrive at conclusions in planning case studies. All students proceed through the core, increasingly 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 report 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, for which purpose is to apply the concepts presented in the core to
specific issues. The student fulfills the sectoral major requirement by completing 9 semester hours of credit in courses offered by various departments and schools of the University, including the planning program.

Currently, there are nine sectoral majors—land use, transportation, housing, human services, 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 problem 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 skill development can be acquired by selecting the appropriate elective courses.

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 two-part comprehensive examination is required for all students. One portion reviews skills and concepts contained in the core, and the other evaluates the student's ability to synthesize knowledge within the sectoral major.

A thesis is required. Although a student may petition to write one for up to 6 semester hours of sectoral major credit, it is included as part of the comprehensive examination requirement.

Each student is encouraged to complete an internship in a planning or related agency in the community. Students are advised to submit a brief paper summarizing and evaluating the experience. Faculty take an active role in aiding students to secure these internships. Alternatively, the student may elect to complete an additional 2 semester hours of credit, bringing the total to 50 hours.

Joint Programs
Law and Planning
The Urban and Regional Planning Program and the College of Commerce in administering a 4-year program which satisfies the degree requirements leading to an M.A. or M.B. 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. Separate admissions to both academic units are required.

Hospital and Health Administration
The Urban and Regional Planning Program and the Program in Hospital and Health Administration in the College of Medicine jointly administer a program for students interested in health policy planning and administration. This 3-year program leads to an M.A. or M.B. in planning and an M.A. in hospital and health administration. Coursework is reduced by one year from the separate requirements of the two programs. 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. This joint program prepares students to address the planning and policy issues involved in social service delivery.

Urban Transportation
The urban transportation research and training program is offered through the Center for Urban Transportation Studies of the Institute of Urban and Regional Research. The institute is a separately administered unit at the University of Iowa. A transportation certificate is awarded to students in academic departments of programs within University who satisfactorily complete a prescribed set of courses in transportation. These courses are taught in the planning program and several other units on the campus. The certificate program allows planning students with sectoral majors in transportation to extend their training and obtain an additional credential. A separate admission process is followed for joint candidacy. For particulars, see "Urban Transportation" in this section of the Catalog.

Financial Aid
Opportunities for students in the Urban and Regional Planning Program to receive financial support exist through a variety of sources and arrangements: tuition scholarships, program teaching and research assistantships, contract or grant-funded research assistantships, and internships in local agencies. All tuition scholarships require from 10 to 20 hours of work per week, under the direction of a faculty member or professional planning staff. Students initiate applications for Dial-Help support, and awards are made on the basis of merit, experience, interests, and need. 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) Aptitude Test scores (quantitative, verbal, and analytic), letters of recommendation, and undergraduate achievement. Applicants are requested to have the application form and the above-mentioned materials submitted by March 15 for fall admission, or by November 1 for spring admission. Fall admission is limited unless the student has substantial advance preparation or a basis to spend more than two years.
Urban Growth in Developing Countries

Program coordinator: Michael L. McNeely

A baccalaureate degree program of interdisciplinary and cross-cultural seminars and courses focused on problems of development in Third World countries is offered through the Center for Development Studies within the Institute of Urban and Regional Research. Intended to facilitate and coordinate interdisciplinary instruction and research, the program is available to graduate students from departments throughout the University.

In addition to a number of development-related courses offered in specific departments, the program includes a graduate course, 102:275 Urban Growth in Developing Countries, offered in the departments of Anthropology, Economics, Geography, Political Science, Social Work, Sociology, and Urban and Regional Planning. Taught by an interdisciplinary team, the course introduces students to the analysis of urban problems in developing countries from a cross-cultural and interdisciplinary perspective.

A graduate workshop provides a forum for graduate students and faculty members from a variety of departments to meet regularly to discuss problems of mutual interest. Additional information may be obtained by contacting the program coordinator.

Urban Transportation

The University of Iowa Center for Urban Transportation Studies offers a graduate program, including coursework and research, in the interactions of society with the various modes of passenger and freight transportation. Active participation of nine academic disciplines allows the student to assemble a program spanning physical, economic, legal, social, and institutional elements. It is this multidisciplinary exposure which distinguishes the program from more traditional graduate urban transportation programs.

An effort is made to integrate issues of economic evaluation of alternative investments, environmental quality, travel demand, urban spatial structure, land use impacts of transportation, transit management and planning, and distributional equity into a technically sound, integrative framework.

The Graduate Program in Urban Transportation draws upon courses offered by participating departments and is coordinated by the Center for Urban Transportation Studies within the Institute of Urban and Regional Research. Academic certification has been authorized by the Graduate College of The University of Iowa, and is documented on the student's transcript.

Students admitted into the program participate in conjunction with the established degree (M.A., M.S., M.B.A., Ph.D., or J.D.) arrangements of their individual departments, programs, and colleges. Students who are enrolled, or who expect to enroll, in the following University disciplines are invited to apply for admission to the Graduate Program in Urban Transportation: business administration, economics, geography, law, political science, psychology, sociology, systems engineering, and urban and regional planning.

Requirements

The urban transportation program is not a degree-granting program, but instead issues a transportation certificate to students enrolled in degree-granting departments who complete an approved course of transportation study. The student should design a course of study in consultation with his or her advisor or the director of the urban transportation program. The course of study must be approved by the urban transportation program executive committee prior to admission to the program.

The course of study should consist of 18 semester hours. Twelve of these 18 semester hours must be in transportation-related courses, and the remaining 6 hours must be in transportation-related courses outside the student's discipline.

Students must be enrolled in the transportation program for a minimum of one year (two semesters) to receive a transportation certificate. To insure knowledge of basic transportation planning and sufficient depth in a specific area, the student must complete the core courses and fulfill one option as part of the 12 semester hours of required transportation courses. The core consists of 3 required courses: 102:111 Introduction to Urban Transportation, 102:252 Urban Transportation Planning, and 102:260 Transportation Policy and Planning.

In addition, students must enroll in 102:311 Transportation Program Seminar for each semester they are enrolled in the urban transportation program; credits for 102:311 do not count toward the 18-credit hour requirement.

Two options are available to transportation program students: 102:281 Problems in Transportation and Land Use is required for the transportation policy option; 585:173 Transportation Systems Analysis is required to complete the transportation design option.

The student should make every attempt to take at least one course from each transportation program faculty member, as they represent the various disciplines germane to transportation planning.

Students are strongly encouraged to gain practical experience in transportation research by completing a thesis or major paper, either in conjunction with a course (such as 102:261 Problems in Transportation and Land Use) or in a research assistantship.

Research

Research projects in urban transportation typically focus on problems of small urban systems and low density estates. In addition to coursework, student and faculty research activities—surveys, analysis of local travel systems, design and monitoring of small demonstration projects, etc.—students develop a broad base of skills and receive a practice-oriented educational experience in areas such as travel.
behavior, transit systems design, transit finance, and impact evaluation.

Urban and regional laboratories available for this learning process (Carrollville, Tides City, Cedar Rapids, Quaid Cities, and Johnson County) provide an attractive range of smaller urban and regional transportation systems within which to study travel behavior and transit planning. Findings from local research are compared to those obtained elsewhere.

All students financially supported in the program participate in transportation research at the center; faculty is provided for students to develop their own research activities.

Financial Aid
Fellowships, research assistantships, and summer assistantships are awarded on a competitive basis, with the level of financial support ranging from quarter-time research assistantships to half-time research assistantships. All out-of-state students receiving research assistantships are eligible for in-state tuition. Students receiving financial support during the academic year are eligible for half-time summer research assistantships, as funding permits; those assistantships are generally awarded for two months.

The financial support listed above does not cover all potential sources available within the University, but only indicates the typical levels of financial support available within the Center for Urban Transportation Studies.

Admission
Application for admission to the Graduate Program in Urban Transportation is made by submitting a duplicate University application form, two letters of reference, and a brief statement relating the nature and extent of the applicant’s interest in urban transportation.

Women’s Studies
Program chair: Carol De Beck Victor
Faculty: professors Danell L. Becker (Communication and Theatre Arts), Linda Kerper (History), J. Kenneth Knut (Marketing), Frederick McDowell (English), Margaret McDowell (English), associate professors Florence Brown (English), Ruth A. Brandes (Social Work), Ivauna P. Cuningham (Waring), Don C. Fields (Dance Concerts); Hannel M. Franz (Business), Cyntia P. Gartox (Chemistry), John M. McLean (Secondary Education); associate professors Doreen Moore (Public Health); Karen A. Nelson (Religion—Religious Education); Carol De Beck Victor (English) associate professors Anna M. Anderson (English), Robert V. Rome (English); B. Bostrom (English), Woodruff (English), Jean L. Bill (Physical Education), and Daniel, Sarah H. Ventz (English), Maril L. Bowles (Psychology), Complaint A. Peck (Science), and Jene A. Weld (Philosophy); instructor Alida V. York (Sociology)

The Women’s Studies Program is a multidisciplinary liberal arts program which is engaged in developing a body of knowledge about women in the humanities and social sciences and institutionalizing that knowledge within the University community. The term "women’s studies" does not connote 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 is a cumulative pattern of learning about women and supplements neglected areas of study in the existing curriculum, raises provocative intellectual questions, and opens wider the quest for truth about the human condition.

Undergraduate Study
Undergraduate students may complete a minor in women’s studies by taking at least 15 semester hours in departmental courses associated with the program, including at least 12 semester hours in upper-level courses (numbered 200 or above), and maintaining at least a 2.0 grade-point average in these courses. Undergraduates in the Bachelor of General Studies program may choose a special area of concentration in women’s studies.

Undergraduates may also elect women’s studies courses from those listed below.

Graduate Study
Graduate students in master’s or doctoral programs may choose a comprehensive area in women’s studies within existing disciplines. Graduate students who 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 varied departments who will direct graduate study, contact the Women’s Studies Program, 305 English—Philosophy Building.

Associated Courses
The departmental courses listed below are associated with the Women’s Studies Program.

For detailed descriptions of the courses, consult the appropriate department, school, or program in the Catalog.

Since the topics of some courses change from year to year, students should refer to the Schedule of Courses to determine whether the topic of the course for a given semester relates to women’s studies. For example, 452 American literature may take as its topic the literature of the American women and will be listed under the headings of American literature and American women's literature. Additional courses in American women’s studies are listed below.

In addition to courses listed in the regular course schedule, women’s studies courses to be offered are listed below.

African-American Studies
45-125 The Black Woman in America

American Studies
45-2 African American Culture
45-4 Family and Sex Roles in American Life
Students in the college-wide honors program may earn as honors degree in zoology upon completion of at least 6 semester hours in 37:196 Honors Laboratory, Research, 37:197 Honors Reading in Zoology, and 37:198 Honors Seminar in Zoology.

Introduction to Research

The department offers 37:190 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 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 competing their training with an M.S. degree have obtained technical or professional positions, some of which require independent responsibility in performance or planning.

Prior to registration in August, all new graduate students in zoology take a diagnostic examination covering topics in developmental biology, genetics, and physiology with an emphasis on cell physiology, evolution, and ecology. On the basis of examination results, students may be excused from further work in one or all of these fields, or required to take specific 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 portions of the requirements. All members of the faculty in zoology engage in research. Areas of departmental research include cell biology, developmental biology, neurobiology, ecology, behavior, physiology, and parasitology. Most projects have an emphasis on animals involving work in other departments, sometimes with joint sponsorship of the faculty in those departments.

For purposes of graduate student advising, research in zoology is categorized in four general areas: developmental biology, ecology and behavior, genetics, and physiology. Each student selects one of these general areas for his or her concentration, and is advised by a committee of faculty members in that area.

**Master of Science in Zoology**

The M.S. degree with thesis requires 30 semester hours of graduate credit and a thesis based on original research. Ordinarily 6 to 8 semester hours are assigned to thesis research and writing. The remaining hours are to be selected in consultation with the student's advisory committee, and the choice of courses will be tailored to the student's background and career goals. The student can receive credit for other work he or she is required to take on the basis of the diagnostic examination (see "Orientation" below), but for courses required by the admissions committee to make up undergraduate deficiencies. After the thesis is accepted, the candidate must pass an oral examination based mainly on the work reported in the thesis and on related subject matter.

The M.S. degree without thesis requires 34 semester hours of graduate credit and a library research report. No more than 4 semester hours of credit may be granted for the research report. Credit may be earned in graduate courses in zoology or cognate sciences; these courses are determined in consultation with the student's thesis committee and tailored to fit the student's background and career goals.

Credit received in courses at the 100-level or above with the exception of courses in zoology required to make up deficiencies revealed by the diagnostic examination (see above), may be included in the 34-semester-hour minimum if approved by the advisory committee. On completion of the hours requirement and acceptance of the research report by the student's faculty examiner, the student must pass a written examination covering his or her graduate program in zoology, including the area of the student's report.

**Master of Science in Biology**

The M.S. program with thesis requires 30 semester hours of graduate credit. Ordinarily 6 to 8 semester hours apply to thesis research and writing. 8 to 12 semester hours to graduate courses in zoology. 8 semester hours to graduate courses in botany, and the remaining semester hours to free 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 on the basis of the student's background and current and prospective research interests. The Ph.D. also determines what portion of the formal coursework 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 fundamentals 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, whose acceptance by the department must precede the student's final examination. The examination covers the thesis and the specialized field the thesis represents.

**Graduate Financial Aid**

Nearly all of the graduate students in the department receive some support from the department, largest number from teaching assistantships, scholarships, and research assistantships, provided by the department. Two of these programs provide postdoctoral fellowships. Support through interdepartmental programs in neurobiology and cancer biology is also available.

The department also participates in the University-sponsored program of teaching/research fellowships. Students who apply for any departmental award may be considered for others, if the review committee considers them eligible. The department provides some support each summer for students who arrange for training at marine laboratories on the coasts, or at other appropriate summer stations. Most assistantships and other appointments for the following academic year are filled by April 1, but opportunities occasionally exist for appointments at other times, including the beginning of the fall semester. Requests for appointment 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 of 3.0 or better and a Graduate Record Examination (GRE) Aptitude Test (verbal and quantitative) score above 1300. The applicant should also take the Graduate Record Examination advanced biology test. A student's life or her score. Although the department prefers applicants who have completed undergraduate programs much like its own, it will consider applicants with
Special 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, fruit flies, and marine organisms. It has 17 walk-in and reach-in environmental chambers for special culture or animal care needs.

There are four transmission electron microscopes, including one for teaching and student research purposes, and one with high resolution capabilities. The department also houses the scanning electron microscope facility of the University.

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 phase contrast and polarizing capacities, and those with Nomarski optics. Centrifuges of various sorts, including refrigerated, high-speed, and ultra-high-speed models, are available.

Other special equipment includes electrophoresis and electrophoresis apparatus; electron-emitting and recording equipment for neurophysiological studies; a PDP-12 computer, and other desk-top computers; gas-flow and liquid-apparatus for radiography of unstable and long-lasting radioactive elements; including gas- flow chromatograph scanners and a gas-flow counter; constant temperature baths with units of various types for metabolism and growth studies; ovens and incubators; recording ultraviolet and visible spectrophotometers; densitometers; and a variety of micrometers; instruments and a field vehicle for field work in physical ecology, water tables, aquatics, and an "estuary ocean"; microelectrophoresis; tissue culture rooms and cabinets; and cold rooms. Laboratories are also equipped for advanced work, which calls for specialized microbiological, biophysical, cytological, or physiological techniques.

Iowa Lakeside Laboratory

Courses

Primarily for Undergraduates

212 Principles of Animal Behavior

36.4.6.

213 Introduction to Developmental Biology

36.4.6.

214 Introduction to Zoology

36.4.6.

215 Cell Biology

36.4.6.

For Undergraduates and Graduates

210 Comparative Vertebrate Anatomy

36.4.6.

211 Functional Anatomy, Physiology, and Microbiology of Laboratory Animals

36.7.6.

212 Developmental Biology

36.7.6.

213 Cell Physiology

36.7.6.

214 Comparative Vertebrate Anatomy

36.7.6.

215 Functional Anatomy, Physiology, and Microbiology of Laboratory Animals

36.7.6.

216 Developmental Biology

36.7.6.

217 Cell Physiology

36.7.6.

218 Comparative Vertebrate Anatomy

36.7.6.

219 Functional Anatomy, Physiology, and Microbiology of Laboratory Animals

36.7.6.
The college is organized into seven academic departments: Accounting, Economics, Finance, Industrial Relations and Human Resources, Management Sciences, Marketing, and, jointly with the College of Education, the Department of Business Education.

The undergraduate and graduate programs of the college are fully accredited by the American Assembly of Collegiate Schools of Business.

Research, executive development, and continuing education activities are supported by the external programs of the college: Industrial Relations institute, Institute for Economic Research, Institute for Entrepreneurial Management, Institute for Insurance Education and Research, Labor Center, and Management Center.

Bachelor of Business Administration

The college offers the Bachelor of Business Administration (B.B.A.) degree in all seven departments. The B.B.A. student completes background 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 of academic study, with at least 48 semester hours in business courses and at least 48 semester hours in general education. Required business specialization is effected through the student’s option for a designated major or minor area of concentration.

The last 30 (or 45 of the last 80) 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 8 semester hours of credit in the student’s major or 6 semester hours in each area of concentration, must be earned at The University of Iowa.

A student who has not satisfied the quantitative methods, psychology/sociology, accounting, and economics requirements when admitted to the college must undertake them in the first enrollment and continue them until successfully completed. In general, students should complete all common requirements by the end of the junior year.

To graduate, the B.B.A. candidate must have at least a 2.0 grade-point average in all coursework, in all coursework attempted at the University, in all business and economics coursework attempted, in all coursework attempted at the University, in all coursework attempted in the major or area of concentration, and in all coursework attempted at the University in the major or area of concentration.

Common Requirements

The B.B.A. candidate must satisfy these minimum common requirements:

- Rhetorical Communications
- * 6 a.h.
- * 6 a.h.
- * 6 a.h.
- * Natural sciences (excluding mathematics)
- Principles of psychology or sociological
- * 3 a.h.
- * 3 a.h.
- * 3 a.h.
- * 3 a.h.
- Quantitative Methods
- * 3 a.h.

6A. Introduction to Financial Accounting
- * 3 a.h.
- * 4 a.h.
- * 4 a.h.
- * 4 a.h.

6F. 15 Introductory Financial Management
- * 3 a.h.

6M. 31 Introduction to Marketing
- * 3 a.h.

6L. 47 Introduction to Law
- * 3 a.h.

6E. 49 Creative Business Management
- * 3 a.h.

wk. 10 Computer Analysis
- * 3 a.h.
One of these courses fulfilling the requirement for a course in administrative processes under uncertainty.

6L:155 Business Policy 3 s.h.

6L:156 Business Policy 3 s.h.

5F:126 Managing the New or Small Business 3 s.h.

*Consult the college’s undergraduate office concerning methods for meeting the requirements listed above.

In addition, the student must complete a major area of study or two areas of concentration. The requirements for a specific major are established by the departments of the college.

An area of concentration consists of a combination of at least three related courses (9 semester hours), selected by the student to meet a specific academic or career objective. Two courses in each area must be offered by the College of Business Administration. The student selecting areas of concentration to meet graduation requirements must submit his or her proposal to the undergraduate committee for approval prior to the start of the senior year.

An undergraduate student in the College of Business Administration may elect to complete a minor in another college of the University. For the minor requirements, the student should consult with the department in which he or she wishes to minor. To have the minor recorded on his or her transcript, the student must inform the Registrar’s Office when applying for the degree.

Business Minor

Students majoring in another college or the University may elect a minor in business administration. Students must meet the general admission requirements of the College of Business Administration (listed under “Program Requirements for Undergraduate Study”) 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 course in statistics numbered 225:8 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.

6M:31 Introduction to Marketing 3 s.h.

6F:16 Introductory Financial Management 3 s.h.

6L:81 Administrative Management 3 s.h.

6L: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 before applying 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 limited and meeting minimum standards does not ensure admission.

The requirements for a minor in business administration may also be satisfied by taking the 190 sequence of M.B.A. core courses during the senior year.

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 exemption with or without 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 16 semester hours for a semester or 90 for a summer session require approval of the academic dean.

Pass/Fail Grading

Of the total semester hours required for a B.B.A. degree, up to 32 may be taken on a pass/fail basis with the consent of the adviser and instructor. However, a student may not count more than 16 semester hours of pass/fail credit in his or her last 60 semester hours of coursework. Courses with the 4.0 G.P.A. code, 6F, 6E, 6C, 6L, or 6M prefixes which are taken to satisfy the common business requirements may not be taken pass/fail, nor may courses in the student’s major area or areas of concentration. Pass/fail 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 P; otherwise, the grade earned (D or F) is recorded.

Second-Grade-Only Option

Unless otherwise specified, a student is required to repeat the University course and have only the grade and term of the second registration used in calculating his or her cumulative grade-point average. This option may be applied to a maximum of 16 semester hours of work.

Admission

The college normally admits undergraduate students at the beginning of their junior year. Second-semester sophomores may be admitted if an accelerated program record has been established. Unconditional admission requires at least a 2.50 grade-point average (A=4) in all college-level courses undertaken at the University of Iowa and all business and economics courses. The applicant should also have satisfied the following common requirements: high school graduation, psychology/sociology, quantitative methods, accounting and economics, and either historical-cultural or literature.

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 in the freshmen and sophomore years are counted toward the B.B.A. degree only if such courses are normally offered at the division course level at the University of Iowa.

Fulfillment of the minimum requirements does not ensure admission. The
Interdepartmental Graduate Programs

Master of Business Administration

The Master of Business Administration (M.B.A.) program is designed for individuals preparing for professional administrative careers in the business or public sector. The program advances career opportunities for the individual and at the same time provides industry and government with the professional personnel required in a dynamic economy.

A special program, the executive M.B.A. program, also leads to the Master of Business Administration degree. Applicants are carefully screened so that entry into this program is limited to experienced executives who want to broaden their management skills without interrupting their professional careers. Coursework in the executive M.B.A. program is presented in two academic years.

A senior student in the College of Liberal Arts who qualifies for admission to the M.B.A. program can use his or her electives during the senior year to satisfy most or all of the core course requirements of the M.B.A. program. This enables the student to receive the undergraduate degree at the end of the fourth year of study and the M.B.A. degree at the end of the fifth year.

The M.B.A. curriculum is designed for candidates whose undergraduate majors were in liberal arts, science, engineering, or other nonbusiness areas, as well as for graduates of schools or colleges of business administration. For the student who has taken no prior business administration courses, 8th semester hours of coursework are required. For the student with prior coursework in business administration, some of the lower-division courses may be waived on the basis of exemption examinations or equivalent coursework of high quality. In all cases, a minimum of 33 semester hours of graduate work is required.

Foundation Courses (27 semester hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A:192 Accounting—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:193 Computer Methods—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6F:194 Managerial Finance—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:195 Management of Organization—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6M:180 Marketing Management—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:187 Quantitative Methods—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:189 Society, Law, and Business—M.B.A.</td>
<td>2 s.h.</td>
</tr>
<tr>
<td>6E:190 Consumer and Firm Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6E:191 National Income Analysis</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

In the M.B.A. integrated core and applied core courses, the student continues the broad study begun in the sequence of foundation courses listed above and pursues in greater depth more advanced study associated with his or her own career objectives.

Following are the integrated and applied core course requirements. (27 semester hours) and the area of concentration requirement (6 semester hours):

Integrated Core (18 semester hours):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6A:116 Managerial Accounting—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:201 Administrative Science I—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:265 Administrative Policy—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:255 Administrative Policy—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:271 Statistical Methods—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6L:273 Managerial Economic Theory—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6R:276 Operations Research—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6F:215 Financial Policy—M.B.A.</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Applied Core (9 semester hours):

Three of the following, or two of the following and an approved elective:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6L:256 Industrial Relations—M.B.A.</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>6K:280 Management Information Systems—M.B.A.</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Area of Concentration (6 semester hours)

In addition to courses required of all students, each individual must select, with the assistance of the M.B.A. advisor, an area of concentration which includes at least 6 semester hours of coursework in that area. Areas of concentration include administrative studies, finance, industrial relations and human resources, management systems, and managerial accounting and marketing.

Master of Arts in Business Administration

While the M.B.A. degree program prepares students for professional administrative careers in the business or public sector, the Master of Arts degree program in business administration is designed for the student seeking specialization in one of several areas of business administration. In addition, it permits a research emphasis which then qualifies students for research or teaching positions or employment in a business-related position.

The program is available on both thesis and non-thesis bases and is sufficiently flexible to permit specialization according to the student's interests and objectives. The students may select a major in administrative studies, finance, industrial relations and human resources, insurance, management systems, and marketing. 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. programs must satisfy the common core of knowledge requirement of the American Assembly of the Collegiate Schools of Business (AACSB). This means that the candidate's undergraduate or graduate coursework must include study in accounting, quantitative methods, organizational behavior, management, finance, marketing, and the economic discipline.
and legal environment pertaining to profit
and/or non-profit organizations.
Requirements (or the Master of Arts
degree with thesis include:
Major area 9 s.h.
Minor area 6 s.h.
Economic theory and/or organizational
behavior 6 s.h.
Electives 6 s.h.
Thesis 3 s.h.
Total 30 s.h.
Requirements for the Master of Arts
degree without thesis include:
Major area 12 s.h.
Minor area 6 s.h.
Economic theory and/or organizational
behavior 6 s.h.
Electives 6 s.h.
Research methodology 3 s.h.
Research reports (two) 2 s.h.
Total 30 s.h.
The minimum number of semester hours
for either program is normally earned in
courses exclusively for graduate students
(200 level); but where appropriate, the student may take
courses at the 100 level. Additional
coursework 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.
A student in the thesis program will be
expected to defend the thesis in an oral
examination, but may be required to take a
written and/or oral
comprehensive examination over
coursework. A final oral examination is
required in the nonthesis program.
Doctor of Philosophy in Business Administration
The Ph.D. program is intended for
individuals preparing for faculty
positions in university or college
schools of business administration and
for business or government careers as
research directors, staff specialists, and
consultants. The program is sufficiently
flexible to accommodate specialization
guided by the student’s interests,
background, and objectives.
Foundation Areas
The purpose of the foundation areas is
to develop competency in research
methods and to provide the background
needed for study in any sequence of
more specialized courses. The
requirements in the foundation areas
may be satisfied by passing a qualifying
examination or by successfully
completing each course. The Ph.D.-level
courses required in the foundation areas
are:
Economic Theory
6E:203 Microeconomics I 3 s.h.
6E:204 Macroeconomics I 3 s.h.
Statistical and Quantitative
Analysis
6C:206 Statistics for Decision-Making
I—Ph.D. 3 s.h.
6C:207 Statistics for Decision-Making
II—Ph.D. 3 s.h.
6C:256 Management Science for
Decision-Making—Ph.D. 3 s.h.
Behavioral Science
6C:268 Behavioral Science and
Business Organizations I 3 s.h.
One or more courses in research
methods approved by the adviser
The student must also satisfy the
common body of knowledge requirement
of the American Assembly of Collegiate
Schools of Business (AACSB). This
requires the student’s undergraduate or
graduate coursework should include
study in accounting, quantitative
tools, management, finance, marketing,
and the economic and legal environment
pertaining to profit and/or non-profit
organizations.
Specialized Areas
Preparation for dissertation research begins
with the student electing two
specialized areas of study. One or both
may be from the foundation areas and
one may be from outside the college.
Typical areas include accounting,
finance, marketing, management
systems, insurance, industrial relations
and human resources, and administrative
studies. Four graduate-level courses are
normally required in each specialized
area.
The student must pass written
comprehensive examinations in both
specialized areas. Upon completion of
the written examinations, the student
must pass an oral comprehensive
examination.
The Dissertation
Completion of the research and writing
associated with the dissertation
normally requires one year of full-time
effort. After completing the dissertation,
the candidate must defend it in an oral
examination.
Graduate Admission
Applicants seeking admission to graduate
work in business must submit a Graduate College application form, and/or
official transcripts of all undergraduate
and graduate work, three letters of
recommendation, and official scores on
the Graduate Management Admission
Test (GMAT). See the "Graduate
College" section of the Catalog for
more information.
Other Graduate Programs
Joint Programs
Joint programs between the College of
Business Administration and the College
of Law and the School of Library
Science are available. A student can
concurrently earn an M.B.A. or M.A. and
a J.D. from the College of Law or an
M.S. in library science from the School
of Library Science.
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 this
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 materials for business and economics are maintained in the Main Library, and the facilities of the University computing center are available to all students. Additionally, students have direct access to a complete computer laboratory within the college. The laboratory serves the instructional programs of the college, and the staff maintains a current library of computational programs and data tapes to service user needs.

The Industrial Relations Institute

The Industrial Relations Institute is designed to bring faculty and students together with people in industrial relations for the purpose of curriculum matters and research, and to conduct continuing education seminars and workshops for practitioners in the field of industrial relations.

The Institute for Economic Research

The Institute for Economic Research facilitates cohesive and 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 to the business and to public agencies; to provide a state focal point for applied economic research; and to promote and enhance academic research and teaching in economics.

The Institute for Entrepreneurial Management

The Institute for Entrepreneurial Management was created in 1979 to promote the entrepreneurial spirit among individuals; assist prospective entrepreneurs in evaluating the economic viability of their proposed business ventures; train owners/managers in the effective and profitable operation of their enterprises after they are successfully launched; and provide career guidance for college students as well as others. These Institute objectives are achieved primarily through a multidisciplinary research and continuing education program.

The 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.

The 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 hybrid on-campus and off-campus programs in order to reach the greatest possible percentage of their constituency. The staff members target their instruction to the specific needs of the labor movement in Iowa.

The 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 work life of men and women in organizations is disseminated through on- and off-campus conferences.

Accounting

Active department head: John H. Smith
Members of the faculty: William A. Matthews, Jr., (Dean); Richard A. Kaysen; William C. Lintz; Douglas V. Durocher; Robert H. Pelton; William S. Van der Linden; Donald W. Walker; John H. Smith.

The Professional Program in Accounting at the University of Iowa is a two-year upper-division and graduate program which leads to the B.B.A. degree after the first year and an M.A. degree after the second year. The program develops the technical proficiency and the conceptual, analytical, and communication skills required in the accounting profession. The program prepares candidates for careers in all areas of accounting and provides the educational qualifications for professional examinations such as those for the Certified Public Accountant (CPA) and the Certified Management Accountant (CMA). Students may enter the Professional Program in Accounting (1) after three years of preprofessional work which satisfies the general education requirements of the University and the business requirements of the College of Business Administration (see program for B.B.A. students) or (2) after completion of a baccalaureate degree in any field (see program for B.A. and B.S. graduates). Candidates for the master’s degree in accounting must maintain a 3.0 grade-point average in all graduate-level accounting courses and must pass an oral comprehensive examination.

Program for B.B.A. Students

A candidate for the B.B.A. may enter the Professional Program in Accounting after completing 90 semester hours of coursework, including the common requirements for the B.B.A. and 63 hours of Major courses. After earning grades of A or B in 9A:1 Introduction to Financial Accounting and 9A:2 Introduction to Managerial Accounting or the equivalent, such students are designated as accounting majors.
After completing first-year coursework, the student can receive the B.B.A. in accounting.
A student entering the program with a B.B.A. in accounting from another university usually is required to take only the second year of the professional program.

These are the typical first-year requirements of the professional program:

* 6A:115 Introduction to Taxation 3 s.h.
  6A:130 Cost Accounting for Management
    Analysis and Control 3 s.h.
  6A:131 Financial Accounting I 3 s.h.
  6A:132 Financial Accounting II 3 s.h.
  6A:144 Auditing 3 s.h.
  6A:146 Financial Accounting III 3 s.h.
  6E:103 Microeconomics 3 s.h.
  6L:146 Law and Business 3 s.h.
  6K:181 Individual Behavior in Organisations 3 s.h.
  6K:178 Managerial Decision Models 3 s.h.

* May be taken during the junior year prior to entry into the professional program.

The following second-year requirements may be taken after admission to the Graduate College:

  6A:220 Accounting Theory I 3 s.h.
  6A:221 Accounting Theory II 3 s.h.
  Graduate accounting electives 6-12 s.h.
  Graduate electives 12-18 s.h.
  6A:250 Accounting Issue Series 0 s.h.

Program for B.A. and B.S. Graduates

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 nonbusiness undergraduate planning to enter the program should include as many first-year courses as possible. For students entering in the fall semester with no previous accounting or business coursework, the typical first-year course include:

  6A:192 Financial Accounting—M.B.A. 3 s.h.

  (should be taken fall semester)

  6A:214 Managerial Accounting—M.B.A.
    (should be taken spring semester) 3 s.h.
  6A:115 Introduction to Taxation
    (should be taken spring semester) 3 s.h.
  6A:131 Financial Accounting I
    (should be taken spring semester) 3 s.h.
  6A:132 Financial Accounting II
    (should be taken summer session) 3 s.h.
  6E:100 Price, Employment, and
    Production Theory 3 s.h.
  6K:193 Computer Methods
    M.B.A. 3 s.h.
  6E:194 Managerial Finance
    M.B.A. 3 s.h.
  6A:108 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.
  6L:148 Law and Business 3 s.h.

  These are the typical second-year courses:

  6A:144 Auditing 3 s.h.
  6A:220-221 Accounting Theory
    I-II 6 s.h.
    (should be taken fall semester and
    spring semester) 6 s.h.
  6A:270 Advanced Financial Accounting
    Problems (should be taken fall semester) 3 s.h.
  6K:261 Administrative Science I
    M.B.A. 3 s.h.
  6K:285 Administrative
    Policy—M.B.A. 3 s.h.
  6K:278 Research—M.B.A. 3 s.h.
  6K:275 Managerial Economic Theory
    M.B.A. 3 s.h.
  Graduate accounting electives
    (should be taken fall semester and
    spring semester) 6 s.h.
  6A:250 Accounting Issue Series 0 s.h.

Doctor of Philosophy

See the "College of Business Administration" section of the Catalog.

Courses

Unless otherwise indicated, courses in accounting are expected to be offered in the fall, spring, and summer sessions.

Primarily for Undergraduates

6A:130 Cooperative Education Training Assignment 6 s.h.

6A:196 Introductory Financial Accounting 3 s.h.

Survey or analysis of contemporary accounting information systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:197 Managerial Accounting 3 s.h.

Survey and analysis of contemporary accounting information systems, emphasis on preparation of information for management decision making. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:181 Financial Accounting I 3 s.h.

Analysis of income accounting reporting principles and procedures for business enterprises, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:182 Financial Accounting II 3 s.h.

Analysis of income accounting reporting principles in the context of various industries and businesses, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:198 Auditing 3 s.h.

Auditing and control of internal procedures, procedures and policies of auditing, and evaluation of financial statements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:210 Corporate Taxation Assignment 6 s.h.

6A:115 Introduction to Taxation 3 s.h.

Survey and analysis of contemporary income tax legislation and administration systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:196 Introductory Financial Accounting 3 s.h.

Survey or analysis of contemporary accounting information systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:197 Managerial Accounting 3 s.h.

Survey and analysis of contemporary accounting information systems, emphasis on preparation of information for management decision making. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:181 Financial Accounting I 3 s.h.

Analysis of income accounting reporting principles and procedures for business enterprises, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:182 Financial Accounting II 3 s.h.

Analysis of income accounting reporting principles in the context of various industries and businesses, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:198 Auditing 3 s.h.

Auditing and control of internal procedures, procedures and policies of auditing, and evaluation of financial statements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:210 Corporate Taxation Assignment 6 s.h.

6A:115 Introduction to Taxation 3 s.h.

Survey and analysis of contemporary income tax legislation and administration systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:196 Introductory Financial Accounting 3 s.h.

Survey or analysis of contemporary accounting information systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:197 Managerial Accounting 3 s.h.

Survey and analysis of contemporary accounting information systems, emphasis on preparation of information for management decision making. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:181 Financial Accounting I 3 s.h.

Analysis of income accounting reporting principles and procedures for business enterprises, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:182 Financial Accounting II 3 s.h.

Analysis of income accounting reporting principles in the context of various industries and businesses, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:198 Auditing 3 s.h.

Auditing and control of internal procedures, procedures and policies of auditing, and evaluation of financial statements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:210 Corporate Taxation Assignment 6 s.h.

6A:115 Introduction to Taxation 3 s.h.

Survey and analysis of contemporary income tax legislation and administration systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:196 Introductory Financial Accounting 3 s.h.

Survey or analysis of contemporary accounting information systems, emphasis on external reporting requirements. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:197 Managerial Accounting 3 s.h.

Survey and analysis of contemporary accounting information systems, emphasis on preparation of information for management decision making. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.

6A:181 Financial Accounting I 3 s.h.

Analysis of income accounting reporting principles and procedures for business enterprises, with emphasis on conceptual framework, financial reporting, income determination, and valuation of fixed assets. Prerequisites: grade of A or B in FINA 112 and passing on 60 semester hours earned.
Accounting
Administrative Management
Economics
Finance
Financial Economics
Industrial Relations
Insurance
Management Systems/Management Science
Marketing
Administrative Services (see below)

Areas of Concentration Option
Complete two 6 semester-hour sequences from each of the following areas in the College of Business Administration:

Accounting
Administrative Management
Economics
Finance
Financial Economics
Industrial Relations
Insurance
Management Systems/Management Science
Marketing
Administrative Services (see below)

Basic Business (see below)

Administrative Services Major
Requirements for the administrative services major are:

6S:2 Business Typewriting Problems
6S:22 Advanced Shorthand and Transcription
6S:35 Business Machines Applications
6S:112 Word Processing

One of the following:
6L:125 Organizational Communication
6L:126 Written Communication in Business

One of the following:
6L:115 Office Management

6S:105 Data Processing with COMOL 3 s.h.

Total 15 s.h.

*Administrative services majors who do
not intend to teach shorthand must substitute 6S:147 Basic Systems Analysis.

Concentration in Basic Business
6S:103 Decision Making for Consumers 3 s.h.
6S:104 Principles of Basic Business 3 s.h.
One additional course in business administration or economics, approved by adviser 3 s.h.
Total 9 s.h.

Teacher Certification
The courses required for the basic Professional Teaching Certification can be found in the "College of Education" section of this Catalog. In addition, these courses are required of all business education teaching majors:

6S:191 Principles of Business Education 3 s.h.
(to be taken in junior year)
6S:192 Methods: Business Subjects 3-6 s.h.
7S:187 Seminar: Curriculum and Student Teaching 1-3 s.h.
(taken concurrently with student teaching)

The Graduate Program Certification Only
This is a special certification for graduate students who have earned bachelor's degrees without fulfilling requirements for a secondary teaching certificate. For this program, the student fulfills all certification requirements by completing a sequence of graduate-level education courses (20-28 semester hours) approved by the adviser (see M.A.T. Program below). In addition, the student may be required to complete courses in business administration, accounting, and economics to strengthen undergraduate preparation in business. The business education course 6S:191 Principles of Business Education is also required. No degree objective is implied, although it is possible to request a change in graduate status. In such instances, the normal faculty review of the student's qualifications would occur before any change could be made.

Professional Improvement (P.I.)
This is a special-uses category for graduate students who wish to complete additional coursework without a further degree objective. Students so classified must be normally accepted as P.I. students and must meet regularly with an adviser. At the same time, there is great latitude in the types of courses which are possible. Many students interested in special workshops, seminars, conferences, and institutes are admitted in this category. It is expected that students will wish to apply for a degree at a later time, all credit computed while admitted for P.I. must be evaluated, and the application is reviewed as if it were a new one for admission purposes.

M.A. Program
This nonthesis program in business education is designed for the graduate student who holds a teacher's certificate and has either a major or a minor teaching area in business education, its purpose is to upgrade professional competence in teaching business subjects in the secondary school or at the community college level.

Upon completion of the courses required for the three areas of study in business education, business administration, and education, the candidate selects for the final comprehensive examinations either a two-hour examination in each area, or a three-hour examination in business education and a three-hour examination in one of the remaining two areas.

A minimum of 32 semester hours must be included in the program with the adviser's approval, within these flexible distributions:

Business Education
6S:201 Foundation of Business Education 3 s.h.
6S:205 Directed Readings 1 s.h.
Three of the following:

65:203 Seminar: Basic Business 2-3 s.h.
65:204 Seminar: Teaching Accounting 2-3 s.h.
65:205 Seminar: Office Education 1-3 s.h.
65:207 Seminar: Information Processing 3 s.h.
65:210 Managing Business Instruction 3 s.h.
65:240 Seminar: Business Teaching 2-3 s.h.

Total 12-17 s.h.

Business

Six to 15 semester hours of credit in business administration, accounting, economics, or related business areas, such as business data processing, business communication, office management, or business systems.

Education

Six to 12 semester hours of credit in general education areas which meet the professional needs of the student, such as counselor education; educational administration; educational psychology; measurement, and statistics; instructional design and technology; post-secondary and continuing education; or special education.

M.A.T. Program

The Master of Arts in Teaching (M.A.T.) program is a 36-semester-hour nonthesis course of study. It is designed for superior business graduates who have had few or no education courses. The program enables students to enrich their background by completing graduate courses in substantive business and business education areas and in graduate courses which constitute professional preparation for secondary school teacher certification and community college teaching.

Two summers and two semesters are usually necessary to complete the M.A.T. program; which requires 18 semester hours in business and business administration and 30 semester hours in graduate education courses.

The business and business education courses must include:

65:191 Principles of Business Education 3 s.h.
65:192 Methods of Business Education Subjects 3-8 s.h.

The graduate courses in education must include:

Educational psychology 3 s.h.
Philosophy or history of education 3 s.h.
Observation and laboratory practice student teaching 12 s.h.
One approved elective 2-3 s.h.

Candidates for the M.A.T. degree must pass comprehensive final examinations in business education and in education. These examinations are taken during the semester in which the candidate expects to receive the degree.

Ph.D. Program

The program is available to qualified candidates who aspire to college and university positions as business teacher educators or as administrative positions in business education. Graduates of this program have also assumed administrative positions in other areas of education and in business, industry, and government.

The Ph.D. program is designed to improve the competence of business teachers at the post-secondary school level, primarily four-year college-level teachers of business teacher education programs and to strengthen the research and administrative skills of students aspiring to both instructional and administrative positions in post-secondary and secondary business education programs.

The Ph.D. candidate in business education is expected to satisfy the requirements for two tools of research before taking the comprehensive examinations. The tool areas are to be chosen from foreign languages, statistics, advanced mathematics, computer programming, scientific method, or other appropriate research tools approved by the adviser.

The doctoral program requires coursework, approved by the adviser, in each of the following areas:

Business Education

Credit core recommended:

65:201 Foundations of Business Education 3 s.h.
65:210 Managing Business Education Instruction 3 s.h.
65:210 Seminar: Business Education Research 3 s.h.
65:220 Seminar: Business Educational Policy 3 s.h.

Two additional 200-level courses in business education 6 s.h.

Total 18 s.h.

Cognate and Related Areas

Business: A minimum of 9 semester hours in 200-level courses from such areas as accounting, business administration, economics, or administrative support systems (including business communications, data processing, and systems, and related courses).

Education: A minimum of 9 semester hours in 200-level courses from such areas as counselor education; educational administration; educational psychology, measurement, and statistics, instructional design and technology, post-secondary and continuing education; or special education.

The program requires the completion of 90 semester hours beyond the bachelor's degree, including the dissertation and two approved courses in economic theory beyond Principles of Economics. A three-hour comprehensive examination is required in each area of study.

Courses

Primarily for Undergraduates

3 s.h.

Computer literacy: problem solving related to personal and business communications such as letter, memorandum, and reports. Open only to students with no previous formal typing course.

652 Business Typing Problems

3 s.h.

Emphasis on mental development and integration of skills and knowledge necessary for typing problems related to the production of letters, memoranda, memos, reports, and forms. Preparation for: keyboarding (65:11), shorthand (65:15), or secretarial (65:16). Students with 65:11 credit.

65:14 Business English

3 s.h.

Development and development of skills in business, professional, and communication. Open to students who have less than one year of high school English or equivalent. Preparation: 65:11 or equivalent.

65:15 Shorthand

3 s.h.

Development and development of skills in business, professional, and professional written communication. Open to students who have less than one year of high school English or equivalent. Preparation: 65:11 or equivalent.
For Undergraduates and Graduates

16.131 Independent Study
16.233 Advanced Shorthand and Translation
16.232 Business Algebra
16.311 Business Mathematics Applications
16.313 Business Numerical Methods

Primarily for Graduates

16.215 Foundations of Business Education
16.331 Special Problems
16.332 Business Teaching

Economics

Department chair: Thomas W. McClure

Economics is concerned primarily with the goods and services of society. It involves the systematic study of such topics as wealth and poverty, money and banking, income and consumption, government expenditures and taxation, and employment and unemployment, and how these factors that ultimately affect the welfare of society.

The purpose of this text in economics is to develop an understanding of how complex economic systems work and how to acquire skills in the methods of economic analysis which can be applied to a wide range of economic problems.

Undergraduate Majors

The bachelor's degree programs in economics provide an excellent educational background for a variety of positions in business and government. Graduates find employment in banking, financial institutions, industrial firms, and trade organizations; and in federal, state, and local government agencies dealing with economic policy, regulation, and analysis. Economists are also regarded as excellent preparation for law and for graduate study in such fields as business management, public administration, health and hospital administration, urban and regional planning, transportation, journalism, political science, and statistics.

The department offers three undergraduate degrees in economics—the B.A., B.S. degrees and the College of Liberal Arts and
B.B.A. in the College of Business Administration.

The B.B.A. and B.S. degree programs are designed for a well-rounded liberal arts education. Requirements for the B.B.A. degree emphasize instruction in the business fields of accounting, finance, marketing, business law, and management.

For descriptions of the B.A. and B.S. degree programs in economics, see the "College of Liberal Arts" section of the Catalog.

Bachelor of Business Administration

In addition to the common requirements of the College of Business Administration, the B.B.A. degree in economics requires 18 semester hours in 100-level economics courses, including:

- E6:102 Microeconomics 3 s.h.
- E6:105 Macroeconomics 3 s.h.

Candidates for the B.B.A. degree may qualify for the degree through an alternative program by meeting the common requirements of the College of Business Administration and completing two areas of concentration, each consisting of at least three courses (minimum semester hour), two of which must be courses offered by the College of Business Administration. The student may select courses from those offered by the Department of Economics to fulfill the areas of concentration requirement. The two areas of concentration must be approved by the advisor.

The student selecting areas of concentration as a method of meeting graduation requirements must submit his or her proposal to the Undergraduate Committee for approval prior to the start of the senior year.

Master of Arts

The department offers a three-semester M.A. program in applied economics, with opportunities to specialize in microeconomic, macroeconomic, international economics and finance, economic development, financial and monetary economics, economics of the public sector, health economics, economic planning and budgeting, business and managerial economics, or labor economics and labor relations.

The first-year core sequence for the basic M.A. program is as follows:

First Semester
- E6:183 Statistical Methods in Economics 3 s.h.
- E6:200 Topics in Economics 1 s.h.
- E6:204 Microeconomics I 3 s.h.
- Economic history course or elective 3 s.h.

Second Semester
- E6:202 Price Theory 3 s.h.
- E6:184 Methods of Quantitative Economics 3 s.h.
- Elective 3 s.h.

The M.A. program requires a course in economic history or history of economic thought.

The student has the option of taking three electives and writing a thesis, for a minimum total of 32 semester hours of graduate credit, or taking five electives and writing a research paper in each of two 200-level economics courses, for a minimum total of 34 semester hours of graduate credit.

A student whose performance in the first semester of the M.A. program may transfer into the Ph.D. program at that time, without loss of credit.

Joint M.A.-J.D. Program

The department collaborates with the College of Law in offering a joint program in which the department accepts up to nine semester hours of law credit toward the M.A. degree in economics, and the College of Law accepts graduate credits in economics toward the Juris Doctor (J.D.) degree.

Doctor of Philosophy

The Ph.D. program is designed to provide rigorous training in microeconomic theory, macroeconomic theory, mathematical economics, and econometrics. In addition, the student selects a major area for intensive study and specialization. The program has three components: a coordinated sequence of core courses, a set of major area courses, and a dissertation. The Ph.D. program has a minimum mathematics requirement of two semester of calculus, which the student must satisfy by the end of the first semester of the program.

The core sequence is:

First Semester
- E6:183 Mathematical Methods for Economists 3 s.h.
- E6:183 Statistical Methods in Economics 3 s.h.
- E6:200 Topics in Economics 1 s.h.
- E6:204 Microeconomics I 3 s.h.
- Second Semester
- E6:203 Microeconomics II 3 s.h.
- E6:206 Mathematical Economics I 3 s.h.
- E6:211 Mathematical Economics II 3 s.h.
- Third Semester
- E6:205 Microeconomics III 3 s.h.
- E6:212 Econometrics I 3 s.h.
- Field course 3 s.h.
- Fourth Semester
- E6:222 Econometrics II 3 s.h.
- Field course 3 s.h.

For students with sufficient mathematical and statistical background, E6:183 and/or E6:183 are waived.

Students planning to specialize in economics should take appropriate courses in mathematical statistics.

Students planning to specialize in economic theory should take a third semester of calculus and E6:212 Mathematical Economics II.

Each student chooses a major area of study in addition to the core courses. The requirement for the major area is a minimum of 24 semester hours of intensive study of a field and in courses that enable the student to understand the relationship between his or her specialty and related fields. The major area requirement includes at least one course (three semester hours) in economic history or the history of economic thought. The student must achieve at least a 3.2 grade-point average in the major area courses. At the end of the first year in the Ph.D. program, the student takes qualifying examinations, covering theory, mathematical economics, and statistics.
After passing the relevant core courses, the student takes comprehensive examinations covering microeconomics, macroeconomics, and econometrics. A student who does not pass the qualifying examination or does not pass the comprehensive examinations may complete a M.A. program.

The student must present a dissertation prospectus within ten months after passing all the written comprehensive examinations. An oral defense of the dissertation research completes the Ph.D. program.

Teaching and Research

The Ph.D. program requires candidates to engage in teaching or research for at least 8 but no more than 12 terms (quarter system) and an additional 2 terms. The total amount of service in each term is 10 hours per week.

Courses

Primarily for Undergraduates

Note: EC 1 and EC 2 may be taken in either order or they may be taken simultaneously; they satisfy the social science core requirement.

EC 100 Cooperative Education Training Assignment 0.5 h

EC 101 Principles of Economics 4.5 h

Organization and hierarchy of modern economic institutions: an introduction to the description of economic activity, alternative formulations of University objectives, and relevant qualifications of University minors.

EC 102 Principles of Economics 4 h

National income and output, employment, and prices; money and credit; government finance; International finance; balance of payments; special qualifications of University minors.

EC 107 Environment, Economics, and Policy 2.5 h

Economic analysis in the context of the economy, the environment, and policy issues. Not open to students who have taken EC 2 or EC 207.

Economic Analysis and Policy

EC 108 I. Intro. to Employment, and Possibility Theory 4 h

Analysis of markets and price determination under uncertainty; conditions for welfare, intertemporal, and intersectoral allocation; introduction to principles of economics; open to students with a minimum economic background. Prerequisite: senior or graduate student.

EC 109 Microeconomics 3 h

Economic theory of consumer behavior, producer behavior, and size of markets in intermediating economic decisions; adjustment to change @junior level. Prerequisites: EC 108 or ECON 101.

EC 110 Macroeconomics 3 h

Analysis of macroeconomic interrelations, exchange; the role of the Federal Reserve System in the macroeconomy; the problem of depression. Prerequisites: EC 108, EC 201, or senior standing. Prerequisite: senior standing.

EC 111 Labor Economics 3 h

Analysis of labor markets, with models of gross and net labor markets, working hours and conditions, collective bargaining, and labor unions. Prerequisites: ECON 101 and EC 108 or senior standing.

EC 112 Health Economics 3 h

Structure of America's medical care industry and applications of microeconomic analysis to the problems of production, payment, and distribution; impact of nutrition, and the role of governmental policy. Prerequisites: EC 108 and EC 109, or consent of instructor.

EC 113 Money, Banking, and Finance 3.5 h

Money, banks, and financial institutions. Special topics; special topics; general topics; economic growth and stability. Prerequisites: EC 108 and EC 109, or consent of instructor.

EC 113 Political Economy of the Military-Industrial Complex 3 h

Analysis of the political and economic power of the military-industrial complex. Prerequisites: EC 108 and EC 109, or consent of instructor.

EC 114 International Economic Relations 3.5 h

Foreign exchange and balance of payments; economic policies of individual countries and international interaction. Prerequisites: EC 108 and EC 109, or consent of instructor.

EC 127 World Economy and Conflict 3 h

Economic issues associated with the "new" cold war. The role of the economic resources, the supply of and demand for commodities, war, and the future of the world economy. Prerequisites: EC 108, EC 109.

EC 130 Economic Development (Sub-Saharan) Africa 3 h

The process of development in Sub-Saharan Africa: the economic, social, political and environmental problems. Prerequisites: EC 108 or consent of instructor.

EC 131 Food and Agricultural Policy 3 h

Institutional and political factors in the agricultural sector; the role of the government in agriculture; policy implications for the future of the agricultural sector. Prerequisites: ECON 101 and EC 108, or senior standing. Prerequisite: senior standing.

EC 132 Economic Growth and Environmental Policy 3 h

Analysis of economic growth and environmental policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 133 Growth and Environment 3 h

Growth and environmental policies and energy constraints and distributional outcomes. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 134 Labor Market and Industrial Relations 3 h

Theoretical and empirical analysis of labor market behavior; labor market policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 135 Money and Finance 3 h

The role of money in the economy; the role of financial institutions; and international financial markets. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 136 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 137 World Economy and Conflict 3 h

Economic issues associated with the "new" cold war. The role of the economic resources, the supply of and demand for commodities, war, and the future of the world economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 138 Labor Market and Industrial Relations 3 h

Theoretical and empirical analysis of labor market behavior; labor market policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 139 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 140 International Economic Relations 3 h

Foreign exchange and balance of payments; economic policies of individual countries and international interaction. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 141 Money and Finance 3 h

The role of money in the economy; the role of financial institutions and international financial markets. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 142 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 143 Labor Market and Industrial Relations 3 h

Theoretical and empirical analysis of labor market behavior; labor market policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 144 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 145 International Economic Relations 3 h

Foreign exchange and balance of payments; economic policies of individual countries and international interaction. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 146 Money and Finance 3 h

The role of money in the economy; the role of financial institutions and international financial markets. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 147 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 148 Labor Market and Industrial Relations 3 h

Theoretical and empirical analysis of labor market behavior; labor market policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 149 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 150 International Economic Relations 3 h

Foreign exchange and balance of payments; economic policies of individual countries and international interaction. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 151 Money and Finance 3 h

The role of money in the economy; the role of financial institutions and international financial markets. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 152 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 153 Labor Market and Industrial Relations 3 h

Theoretical and empirical analysis of labor market behavior; labor market policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 154 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 155 International Economic Relations 3 h

Foreign exchange and balance of payments; economic policies of individual countries and international interaction. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 156 Money and Finance 3 h

The role of money in the economy; the role of financial institutions and international financial markets. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 157 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 158 Labor Market and Industrial Relations 3 h

Theoretical and empirical analysis of labor market behavior; labor market policy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 159 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 160 International Economic Relations 3 h

Foreign exchange and balance of payments; economic policies of individual countries and international interaction. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 161 Money and Finance 3 h

The role of money in the economy; the role of financial institutions and international financial markets. Prerequisites: ECON 101 and EC 108, or senior standing.

EC 162 Corporate Industry and Capital Markets 3 h

The structure of corporate industry and capital markets; the role of financial institutions and markets in the economy. Prerequisites: ECON 101 and EC 108, or senior standing.
Financial Insurance

6K:7 Statistical Analysis
6K:111 Investments
6K:115 Financial Markets and Institutions

At least 2 semester hours of accounting beyond the basic core, followed by any two of these:
6K:112 Security Analysis
6K:114 Commercial Banking
6K:116 Case Problems in Financial Management

Insurance

6K:7 Statistical Analysis
6K:30 General Insurance
6K:111 Investments
6K:121 Property and Liability Insurance
6K:122 Life and Health Insurance

At least one of the following:
6K:123 Public Economic Security Programs
6K:124 Risk Management

Three additional hours of courses specified by the student's advisor.

Undergraduate Program

The undergraduate finance program deals with the theory, organization, and operations of the financial system from both the social and individual viewpoints. Students are expected to develop analytical abilities and to present their analyses in both written and oral form.

Students graduating with a major in finance may specialize in either finance or insurance. Finance specialists may look forward to managerial positions in investment or treasury work in non-financial businesses, or in non-profit or government organizations. Insurance specialists may find employment in risk management departments in public and private agencies, in large businesses, or in insurance companies. The education received in either area is connected with progress toward responsible managerial positions.

Requirements for the Bachelor of Business Administration degree with a finance major and specialization in either finance or insurance are as follows:

Finance

6K:7 Statistical Analysis
6K:111 Investments
6K:115 Financial Markets and Institutions

At least 2 semester hours of accounting beyond the basic core, followed by any two of these:
6K:112 Security Analysis
6K:114 Commercial Banking
6K:116 Case Problems in Financial Management

Insurance

6K:7 Statistical Analysis
6K:30 General Insurance
6K:111 Investments
6K:121 Property and Liability Insurance
6K:122 Life and Health Insurance

At least one of the following:
6K:123 Public Economic Security Programs
6K:124 Risk Management

Three additional hours of courses specified by the student's advisor.

Graduate Programs

Refer to "Interdepartmental Graduate Programs" at the front of this section of the Catalog.
Management Information Systems Track
One computer science programming course (202.16-17 recommended) 8K:181 Management Systems Design
One of the following:
8K:182 Managerial Information Processing and Decision Behavior
8K:173 Managerial Economics
8K:178 Management Science Topics

Master of Arts
The Master of Arts program in management science is designed for the student who seeks an opportunity for specialization and research experience. The general requirements are specified in the description of the Master of Arts in business administration. Students must consult with a faculty advisor to prepare a plan of study for the master's degree.

Doctor of Philosophy
Candidates wishing to earn a Ph.D. degree in management sciences should refer to the description of the degree leading to the Ph.D. in the "College of Business Administration" section of the Catalog, and then consult with a faculty advisor.

Courses
Primarily for Upper-Division Undergraduates
Mgmt 452: Cooperative Education Training Program 0, 4, 8K:305 Computer Business
3, 4
Introduction to the computer and its uses in the business world. Management of organizational data, systems design, programming, microcomputer basics, and word processing.
8K:71 Statistical Analysis
3, 4
Fundamental principles of statistical evaluation. Study of methods for dealing with managerial problems involving uncertainty or risk. Descriptive and inferential data analysis and use of data. Prerequisites: 8K:305.
8K:60 Production Management (4, 8K:153, 154)
Organization and management of manufacturing enterprises. Production design and process planning, layout and materials handling, work simplification and measurement, production inventory control. Prerequisites: 8K:2 and 8K:71.

For Undergraduates and Graduates
8K:101 Directed Readings 0, 4
Individual and/or group supervised study in selected areas of management sciences. Prerequisites: consent of instructor.
8K:161 Individual Behavior in Organizations 3, 4
Principles of motivation, personality, learning, attitude formation, exchange, socialization, decision making, and task performance applied to behavior in organizational contexts. Prerequisites: 8K:61 and completion of the psychology or sociology requirement, or consent of instructor.
8K:162 Group Behavior in Organizations 3, 4
Basic characteristics of organizational structure and group purposes from perspectives of a variety of theoretical perspectives. Group interaction, decision making, and communication are also covered. Prerequisites: 8K:161 and completion of the sociology or psychology requirement, or consent of instructor.
8K:163 Design and Management of Organizations 3, 4
Applies organization theory to problems of organizational design and operations; examines structure and processes appropriate for particular classes of organizational activities and environments. Includes the design and management of instruction.
8K:165 Business Policy 3, 4
Studies the overall management responsibility of business managers to a variety of aspects of business management and to the role of the manager in making decisions in a changing environment. Prerequisites: 8K:61, 8K:162, or consent of instructor.

Administrative Studies Track
8K:166 Individual Behavior in Organizations 3, 4
Explains the behavior of individuals in organizations, emphasizing the behavioral science role of management. Prerequisites: 8K:161 and 8K:162, or consent of instructor.
8K:175 Decision Theory for Business 3, 4
Introduces mathematical approaches to business problems. Emphasis is placed on applications of mathematical decision making. Prerequisites: 8K:61, 8K:161, and 8K:162.

8K:176 Management Decision Models 3, 4
Introduction to the study of management decision-making processes. Emphasis on the organization's use of economics in economics and management; the role of competitive strategy; the interaction of business, society, and technology; and the network flow algorithms. Prerequisites: 8K:161 and 8K:162.
8K:177 Simulation Methods 3, 4
Introduces the techniques of computer simulation and its relationship to business decision making; problems in the use of simulation; the time value of money; and simulation software. Prerequisites: 8K:161 and 8K:162.
8K:178 Management Science Topics 3, 4
Practical topics in management science. In-depth study of areas such as mathematical programming, inventory, network analysis, and game theory. Prerequisites: 8K:170 and 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 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 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 at least three years of preprofessional study and approximately 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; periodontology. In addition, there are selected mini-courses in the biomedicine options program which are correlated between the basic and clinical sciences.

Community Dentistry
- Ethics; epidemiology; nutrition; preventive dentistry; community health; principles of human behavior; dental economics; dental jurisprudence.

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-treatment situations during the first year.

The second-year program includes further activities in the basic and clinical sciences. Students are introduced to dental auxiliary utilization and its role in efficient and effective patient treatment.

Third-year dental students rotate through a series of "clerkships" which expose them to each of eight clinical disciplines.

Fourth-year dental students are involved in the delivery of comprehensive dental care in an environment which closely simulates conditions in private dental practice. Fourth-year students also are exposed to various auxiliary health programs at state and university Hospitals and the State Department of Health. There are available preceptorships in which fourth-year dental students assist in selected dental clinics throughout the state. The preceptorships expose students to facades of dentistry usually not observable in an academic setting, such as practical business management procedures, appointment-book control, the dynamics of presenting treatment plans to private patients, and the relationship of the dentist to the community.

Promotions and Graduation
- Student promotions and graduation are determined by the 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 protection 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 committee considers such matters as student scholastic achievement, promotion, absences, and general fitness to enter the dental profession. The recommendation of the appeals committee is submitted to the dean for final action.

State Board of Dentistry Licensure Examination
The states of Kansas, Colorado, Missouri, Oklahoma, Iowa, Wisconsin, Nebraska, Minnesota, Wyoming, North Dakota, and South Dakota have joined in the formation of the Central Regional Dental Testing Service to replace clinical 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 its administrative secretary. 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; a Basic Sciences Building; University Hospitals; and a Health Sciences Library. The Health Sciences Library houses all of the University's special health science holdings, including the College of Dentistry's collection of more than 10,000 volumes on dentistry and allied scientific subjects, and the more than 260 professional journals the college can entry receives.

The Dental Science Building consists of two connected four-story wings located on either side of a mall. The south wing is devoted to clinical teaching, with various departmental clinic facilities, 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 audovisual production center, and the programs in community dentistry.

Student Organizations
All dental students are eligible for membership in the American Student Dental Association. Students who rank in the upper 13 percent of the senior class are eligible for Omicron Kappa Upsilon, national scholastic honorary dental society. Two national dental professional fraternities, Delta Sigma Delta and Psi Omega, have chapter houses at Iowa State, and both have sponsored organizations. There is also a Dental Student Wives Club.

Expenses
The College of Dentistry maintains a Supply-Instrument Management System (B.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 breakage fee must also be deposited; the deposit is refundable upon graduation or termination of enrollment.

Financial Assistance
Under the Health Professions Loan Program, it is possible for dental students to borrow a maximum of $10,000 per year of their undergraduate professional studies. Eligibility is established by completion of the College Scholarship Service Financial Aid Form, which includes a parent's financial statement. Dental students may also apply for Guaranteed Student Loans through banks and other lending agencies; students may borrow a maximum of $10,000 per year. D.D.S. professional program interest rates on Health Professions Loans and Guaranteed Student Loans are comparatively low and are repayable over an extended period of time after the recipient completes the course of study.

A number of short-term loans are available from the American Dental Association, the Iowa Dental Association, the Ketler Foundation, the Iowa Dental Achievement Fund, and other sources, to help students in emergency situations. These are available through the financial aid coordinator of the student affairs committee in the College of Dentistry. See the 'Financial Aid' section of the Catalog or inquire at the Office of Student Financial Aid for information regarding other assistance available to dental students.

Admission
Applications are accepted beginning June 1 of the year prior to the year for which application is made. The closing date for application is November 30 for the class entering the College of Dentistry the following August. The prospective dental student is encouraged to complete the program leading to a standard bachelor's degree before applying to dentistry, or 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. Preference will be given to applicants who have a bachelor's degree or who have completed requirements for the degree in a combined program.

General Basis for 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.

Predental Studies
The basic academic requirement for admission to the College of Dentistry is the completion of no less than 94 semester hours of academic study at an accredited college. In exceptional circumstances, candidates with fewer than 94 semester hours of college work will be considered for admission if the applicant's performance and potential for the dental profession are considered outstanding.

The predental program of study should include:

Rhetoric
Satisfactory accomplishment in English composition and speech commensurate with the academic requirements for a bachelor's degree at the college attended.

Physics
One year (equivalent to eight semester hours), of which one-fourth must be laboratory work.

Chemistry
Two years (equivalent to 18 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; the requirement may be satisfied by a one-year course in either general biology or zoology and botany (not botany alone).

Electives
Sufficient coursework in the social sciences, philosophy, psychology, 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
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 bachelor's 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 at least 2.6 (A=4). In addition to the grade-point average, the admissions committee gives special consideration to the quality of the applicant's coursework in the predental sciences.

Interviews
Preclinical interviews are required of applicants for admission to the College of Dentistry.

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. Applicants may obtain test application forms from the University or the American Dental Association. Test applications should be submitted well before the test deadline.

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 admittance. This deposit is not refundable but is credited toward the first year's tuition. An 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 and practice of dentistry. The committee considers applicants' academic achievements, standardized test scores, and other factors.

Since the available places in the freshman class of the College of Dentistry are limited, preference is given to applicants who are residents of Iowa under the University's regulations on preference. If it is found possible to consider applicants who are not residents of Iowa, preference is given to nonresident applicants from states without dental schools, and to other nonresident applicants who have demonstrated outstanding scholarship and promise. Nonresidents whose grade-point averages are below 3.0 are discouraged from applying.

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
Dental Hygiene/DENTISTRY

Pathology and Diagnosis, Oral Surgery, Orthodontics, Pedodontics, Periodontics, Preventive and Community Dentistry, and Removable Prosthodontics.

Admission to any of the graduate programs requires satisfaction of all requirements for admission to the Graduate College, possession of the Doctor of Dental Surgery degree or its equivalent, 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 a.h.
60:114 Oral Microscopic Anatomy and Embryology 1 a.h.
61:162 Dental Microbiology 4 a.h.
69:203 Introduction to Human Pathology 4 a.h.
71:111 Pharmacology for Health Sciences: Dental 5 a.h.
72:152 Mannheim Physiology 4 a.h.
99:161 Biochemistry for Dental Students 4 a.h.
General Microscopic Anatomy for Dental Students 4 a.h.

Nondepartmental Courses

113:100 First-Year Oral Hygiene Seminar 0.5 a.h.
113:150 Second-Year Oral Hygiene Seminar 0 a.h.
130:500 Basic Science Options 4 a.h.
Selection from a series of elective mini-courses to emphasize the scientific basis of dental practice.

113:558 Dental Therapeutics 1 a.h.
Clinical experience with drugs for extirpation, endodontics, prosthodontics, local anesthetics and postsurgical pain control; presentation writing; drug interactions; emergency drugs.

113:773 Third-Year Oral Hygiene Seminar 0.5 a.h.
113:774 Program Alumni
Opportunities for foreign dental studies are negotiated with the dean of dental colleges abroad.

115:100 Four-Year Clinics 0.5 a.h.
Preclinical courses covering specific topics in oral hygiene, radiography, and other investigative procedures, including preventive and restorative dentistry.

115:341 Introduction to Clinical Prosthodontics 3 a.h.
Lecture and laboratory work on prosthodontics, with emphasis on occlusion and the prevention of occlusal problems. Instruction includes the recognition of the oral condition, the history and examination of the patient, the planning and development of prosthetic treatment, and the evaluation of the treatment.

115:368 Advanced Dental Studies 1 a.h.
To provide graduate students with an overview of advances in other clinical specialties within the college. Offered alternate years.

Clinical Management Concepts

Faculty, associate professor Thomas G. Cartright; associate professor Herbert Johnson; clinical assistant professor Dennis Scott.

115:507 Basic Advocate Seminar 1 a.h.
Weekly series of meetings and student activities arranged to provide educational experiences in patient relations and treatment coordination utilizing comprehensive patient record systems.

115:510 Clinical Hygiene Diagnosis, diagnosis, and treatment of patients with oral lesions; determination of patient dental hygiene for referral to appropriate specialty for treatment.

115:530 Advanced Dentistry 3 a.h.
Advanced clinical training program including the basic concepts and skills necessary to enable the student to advance in dental hygiene. The program includes principles of patient communication, diet counseling, mechanical treatment, instructing, and restorative procedures.

Preclinical student dental assistant.

Dental Hygiene

Department chair: Pauline Stites; associate professors Linda Bjian, Pauline Stites, Elizabeth Horgan, James Seny, Nancy Sibley Lequin; Patricia Roseman, Dorothy Howes.

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 100 hours of general education followed by two years of specialized study. Students who wish to graduate in December rather than May may enroll in an extended summer session before 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 and state dental hygiene licensure examinations required for dental hygiene practice.

Included in the general education requirements are courses in the basic and social sciences. These courses provide the student with educational preparation in disciplines relevant to specialized study in medical and dental sciences and in dental hygiene.


In addition, juniors learn the basic theory and clinical skills required for dental hygiene practice in 86:81 Dental Hygiene Core I and 86:82 Dental Hygiene Core II, which integrate content in dental hygiene with the theory and practice of clinical dental hygiene.

During the senior year, students advance their clinical skills in 86:85 Clinical Dental Hygiene. In 86:80 Advanced Periodontics for Dental Hygiene Students, 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

Senior students also are enrolled in 88:87 Practicum: Community Dental Health and 88:88 Seminar: Community Dental Health.

Courses traditionally taught as isolated subject-oriented units, such as dental health education, public health, and audiovisual media, are incorporated into an integrated core. Learning emphasis is on the relationships between the underlying theory and practical application of community dental health. Weekly field experiences enable students to apply knowledge of human behavior, basic principles of communication skills, educational and research techniques and to design, implement, and evaluate health care and educational programs.

Admission Requirements

High School Preparation

Although there are no specific high school course requirements, college preparatory courses are recommended. These courses should include four years of English, two years of the same foreign language, two and one-half years of mathematics, and one year each of biology and chemistry.

College Preparation

Eligibility for admission to the professional program in dental hygiene requires satisfactory completion at 60 semester hours of college coursework. In fulfilling this requirement, the student must satisfy general education requirements of the College of Liberal Arts and complete the following dental hygiene prerequisites:

Five semester hours (eight for transfer students) of biology or general biology—37:350 Principles of Animal Biology

Three semester hours of organic chemistry—4:6 General Chemistry I, 4:8 General Chemistry Laboratory.

Four semester hours of microbiology—61:164 Microbiology.

Three semester hours of nutrition—17:142 Nutrition.

Four semester hours of psychology—31:1 Elementary Human Anatomy.

Four semester hours of physiology—72:13 Introduction to Human Physiology.

These prerequisites provide the educational basis for the dental hygiene courses of study. In addition, students admitted into the professional program of study must complete basic certification in cardio-pulmonary resuscitation techniques (CPR) prior to entrance. Completion of a two-year associate degree program in dental hygiene does not provide an acceptable background for transfer into the baccalaureate program at Iowa.

Students begin the professional program in dental hygiene in the fall only. Students enrolled in The University of Iowa College of Liberal Arts need submit only the dental hygiene qualification in the fall semester of their sophomore year. Transfer students must submit both College of Liberal Arts and dental hygiene qualifications. All applicants are interviewed by the dental hygiene admissions committee before being admitted. Students must apply for dental hygiene admission by March 1 preceding the fall semester in which they wish to enter the program.

Graduate Program

Although the need for qualified educators in dental hygiene continues, the graduate faculty has noted the need for preparing graduates to contribute toward the advancement of new knowledge in dental hygiene. This has resulted in revision of graduate program goals placed in the area of research on the acquisition of advanced scientific knowledge in the biological and social sciences and basic knowledge of and experience in conducting research.

The curriculum design provides the student with major concentration in advanced dental hygiene theory. In the biological field, this consists of the pathophysiology of dental plaque, including plaque microbiology and biochemistry, and the relationship of plaque to caries and periodontal disease; the response of the host to dental plaque, emphasizing immunological mechanisms, and the prevention of dental diseases by immunization and antimicrobial agents.

In the social science area, students consider the implications of applied sociological, psychological, economical, cognitive, and environmental concepts related to oral health. Selected readings relate societal values and structural elements of dental care delivery systems to oral health outcomes and explore the relationships of the individual, the family, and the community to oral health outcomes, both behavioral and physiological. In addition, students learn how social science methodology can be utilized to conduct research targeted to the profession of dental hygiene and to oral health by developing a mini-research proposal and supporting the need for such research through a focused literature review.

Study in the educational field includes trends in dental hygiene with emphasis on dental hygiene education; elements of curriculum design; and the theory and application of didactic and clinical teaching in dental hygiene.

Although students may begin the program during the fall, spring, or summer session, enrollment at the beginning of the summer session is preferred. Applications, transcripts, and Graduate Record Examination (GRE) Aptitude Test scores should be submitted by early spring prior to the semester admission is desired. Most students should expect to take two academic years to complete degree requirements.

Approximately 12 semester hours are assigned courses to advance knowledge
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in dental hygiene and 10 semester hours in research methodology and in thesis preparation and defense. The remaining 12 hours are to include electives in the biomedical and social sciences.

Elective coursework related to the biomedical sciences may include microbiology, Nalotology, biochemistry, oral pathology, and parodontology. Electives emphasizing the social, economic, and political aspects of health include epidemiology, medical sociology, and health administration.

Students are also encouraged to consider taking electives in education, such as educational measurement, theories of learning, and administration.


Graduate Admission Requirements

Applicants for admission are subject to the general rules of the Graduate College. Departmental requirements include 13 credit hours on the Graduate Record Examination (GRE) Aptitude Test and a 2.5 minimum undergraduate cumulative grade-point average (A=4). The undergraduate education of the applicant should include courses equivalent to those in the undergraduate dental hygiene major at The University of Iowa. Candidates for admission must submit official transcripts of all undergraduate academic records, an application for admission, and Graduate Record Examination scores to the Office of Graduate Admissions, Calvin Hall. These materials must be received before the candidate's application can be processed. Application for admission and information on the Graduate Record Examination can be obtained from the Office of Graduate Admissions.

Special Programs

Through an independent study program, students can explore additional career options in dental hygiene or enrich their educational background in a dental hygiene-related field of study. For example, a student interested in clinical research may become involved in a faculty-directed research project. Others considering graduate programs in public health or dental hygiene education may, under the direction of faculty, conduct projects related to these interest areas.

Facilities

University of Iowa dental hygiene majors receive their professional preparation in the University's modern Dental Science Building. This building is part of The University of Iowa Health Center complex, one of the nation's outstanding health science teaching, research, and patient care facilities.

Financial Aid

In addition to financial assistance available to University students in general, there are a limited number of loans normally available for dental hygiene students. These loans are based on the creditworthiness of the student and on the student's academic record as well as financial need.

Courses

For Undergraduates

88:21 Dental Hygiene 1.5 s.

Required study of human dental anatomy, morphology, and occlusion, and introduction to dental hygiene theory, clinical skills, health and oral anatomy, and dental diseases. Distances and clinical experiences are related to complete and prophylactic and dental hygiene procedures.

88:22 Dental Hygiene 2 1.5 s.

Introduction to dental hygiene theory, clinical skills, health and oral anatomy, and dental diseases. Distances and clinical experiences are related to complete and prophylactic and dental hygiene procedures.

88:23 Dental Hygiene 3 1.5 s.

Exposure to applied dental hygiene theory in the performance of intermediate clinical dental hygiene and oral diseases control procedures.

88:24 Clinical Dental Hygiene 1.5 s.

Prerequisites: one of the above courses, with emphasis on providing comprehensive preventive and clinical services.

Endodontics

Department Head: Marcia E. Zadnikak
Faculty: Brenda M. Borsolino, James D. Zadnikak
Departmental Office: Zadnikak Hall
Teaching: dental treatment of endodontic diseased teeth.

Predoctoral Program

Coursework 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 of the dental pulp, emphasizing the
areas of prevention and diagnosis of pulpal disease. Students are
endodontic patients under direct supervision of the department's faculty and
staff.

Graduate Program in Endodontics

The graduate program offered by the Department of Endodontics is designed
to prepare qualified dentists for the practice of endodontics and for a career
dental education and research.

The department offers two types of graduate (post-D.D.S.) programs.
The Master of Science degree program requires a minimum of 40 graduate
credit hours, including an original research project and thesis. The student
follows a plan of study which may involve a total of 60 semester hours.
The certificate program requires no formal thesis. The candidate is expected
to write a scientific paper of publishable quality, based on original research.
The certificate program involves course study for up to 60 semester hours of study. An individual plan of study is prepared for each student.
Both programs are for a minimum of two calendar years, and only full-time
students are admitted. Completion of the program requires satisfactory
performance in a comprehensive written and/or oral examination which is of
a functional character and does not duplicate semester examination. These programs satisfy the training requirements for eligibility for the
American Board of Endodontics.

The specific goals of these programs are to allow the dentist to develop his
skills and acquire a broad knowledge of the speciality of endodontics for
teaching and practice purposes; to gain sufficient knowledge and experience
in the educational process so that he or she may function competently as a dental educator; to recognize the value of the pursuit of academic research; and to develop the ability to think, conduct, and report the results of research investigations.

An applicant for the graduate programs in endodontics must be a graduate of an accredited college of dentistry and must comply with the requirements for
admission to the Graduate College of The University of Iowa.
The graduate programs in endodontics normally begin July 1. However, it is also possible to start a program at the beginning of either the spring semester or summer semester. Applications should be made no later than two semesters prior to anticipated starting date.

Students who have met the requirements for admission to the Graduate College must also be accepted into the program by the faculty of the Department of Endodontics. A personal interview with the student may be requested.

Each student in the program must maintain a grade point average of 3.0 to receive a certificate or degree. A student who fails below this level will be
allowed one semester to attain it. The circumstances creating the deficiency will receive careful consideration.

Students enrolled in the graduate programs in endodontics may not involve themselves in private practice enterprises outside the college. A student who does so will be asked to resign himself or herself completely either to the program or the practice.

Persons applying to the graduate program in endodontics must be able to support themselves financially for the time required to complete the program.

D.D.S. Program

53140 Endodontics
Lectures, seminars, and laboratory projects designed to provide understanding of basic principles, concepts, and procedures essential for treatment of pulpal problems in human teeth.
53240 Dental Endodontic Practice
Clinical endodontic procedures; clinical symptoms and signs; histopathology of infected tissue evaluated by student's practical applications on simple cadaveric teeth: Prerequisites: 53140, 53240, and 53310.
53310 Selected Topics in Endodontics
1.0 a.

Primary for Graduates

53395 Endodontic Literature Seminar
Reading of the latest and pertinent of endodontic literature.
53396 Endodontic Laboratory Seminar
Introduction to selected methods of endodontics and verification of practical cases in endodontics.
53397 Endodontic Laboratory Seminar II
Reading and discussion of contemporary endodontic research.
53500 Endodontic Laboratory Seminar IV
Research papers, evaluation, and discussion of methods and materials and their use in endodontics.
53350 Research in Endodontics
Team selection, protocol preparation and execution, literature review and evaluation, and data gathering and analysis, and writing of thesis and defense.
53351 Thesis Preparation in Endodontics
1.0 a.
53352 Endodontic Paper Development
Evaluation of endodontic cases that require surgical treatment; discussion of different treatment modalities and philosophies; graduate students present their case histories before and after treatment in the lecture, discussion of surgical approach to endodontic treatment.
53353 Advanced Clinical Endodontics
Clinical treatment of cases progressing from simple to more advanced, thereby to implants and implants. Students expected to take this course.
53354 Seminar in Endodontics
1.0 a.
53355 Seminar in Endodontics II
1.0 a.
53356 Seminar in Endodontics III
1.0 a.
53357 Seminar in Endodontics IV
1.0 a.
53715 Endodontic Conference
Clinical and radiographic diagnosis in relation to selected clinical cases; review of various difficulties; diagnostic and therapeutic procedures leading to treatment; planning: and alternative treatment procedures of highly difficult cases.
53716 Seminar in Endodontics V
1.0 a.

Family Dentistry

Division head: Daniel L. Hall
Holl, H. Eisen, Jr., Vincent P. Williams

The Department of Family Dentistry is responsible for the training of dental students' first synthesis of academic experiences; the main goal is the integration of earlier learned clinical skills into a well-organized and systematic approach to provide comprehensive treatment of dental patients. The experience encompasses
approximately three-fourths of the senior year.

Students spend four and a half days a week in clinical settings, where they gain experience in total patient management and care. Their didactic coursework builds on the previous year’s education. All areas of clinical and didactic instruction, patient awareness, and sensitivity to patients’ needs are stressed.

The department’s two practice management courses—one lecture, the other clinical—prepare the student to make practice location decisions as well as manage the business aspects of a dental office.

Courses

110:180 Introduction to Hypnosis in Clinical Practice

1 0.5

Hypnosis as an aspect of behavioral science. Emphasis on contextual background, a survey of current clinical uses, and practical, ethical, legal, and philosophical implications. Preparatory content of course director, Same as 111:180;

110:185 Practice Management Lecture

1 0.5

Dynamic economic aspects of management principles, personnel management, economics of time practice, marketing strategies, communication, and decision making, with discussions of developing a dental practice. All students are required to observe a practice and attend at least one consultation with a dentist.

110:189 Clinical Practice Management

2 0.5

Aptitude based on principles of management development of a dental practice, including time management, business activities, and facilities, and emphasizing the importance of efficiency and organization in delivering high quality care to patients.

110:181 Family Dentistry: Lecture

1 0.5

Synthesis, analysis, and evaluation of present anatomic and functional experience for an integrated and comprehensive system of dental health care management.

110:181 Family Dentistry: Clinic

0.5

Clinical application of preventive care, nutrition, psychodynamics, and effective learning experiences toward development of an integrative and comprehensive system of dental health care management.

110:188 Group Practice Seminar

1 0.5

Dynamic principles of a modern dental group practice. Critical thinking and group decision making. Topics developed in the group methods are explored and developed to encourage the effectiveness and efficiency of total patient care by members of the group.

110:184 Sandblasting in General Practice

1 0.5

Denture techniques from the various general specialties provide current techniques and facilities for their areas and demonstrate applications for the general practitioner. Information about selection of Shade guide system.

110:188 Diagnosis and Treatment Planning Seminar

1 0.5

Documentation of diagnostic procedures used in the development of a treatment plan and sequence for dental patients.

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. Any student who is unable to maintain the minimum 3.5 grade point average during the first year of the program, or who elects to terminate the program after one year, will be considered for a certificate of attendance.

Certificate Program

The department offers a certificate program which provides more clinical experience than the M.S. program, and does not require a research project and 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.D.S. or D.M.D. degree or its equivalent.

Courses

81:136 Prosthodontic Materials Laboratory

3 0.5

The student learns to fabricate prosthodontic restorations through observation of laboratory procedures. Same as 80:136.

81:142 Fixed Prosthodontics Technique Lab

3 0.5

Incorporation of custom and molecular structure into the functional and mechanical properties of basic dental materials.

81:142 Fixed Prosthodontics Technique Lab

4 0.5

Interdisciplinary introduction to concepts of occlusion and occlusion.

81:142 Fixed Prosthodontics Technique Lab

3 0.5

Incorporation of custom and molecular structure into the functional and mechanical properties of basic dental materials.

81:142 Fixed Prosthodontics Technique Lab

3 0.5

Technical procedures required in construction of fixed prostheses.

81:142 Fixed Prosthodontics Technique Lab

3 0.5

Application of the concepts of occlusion and occlusion in the nature of the disease.

81:142 Fixed Prosthodontics

4 0.5

Seminar covering previously acquired knowledge in biological and organic sciences and techniques with clinical fixed prosthodontic procedures. Practice in Dental laboratory equipment for individual supervision and demonstration.
Operative Dentistry

Department head: Wolman M. Johnson
Faculty: provosts Kit Chi Chao, David Deverly, James Olin, Wallace W. Johnson...
Examination professor: Dan Brown, Shearon Hiroko
Assistant professor: Yosuke Chiba, John West
Custodian: Thomas Smith
Degree offered: M.S.

Predoctoral Program

This course, which offers clinical experiences in operative dentistry, is fundamental to the overall education of a dental student. The departmental curriculum is designed so that the didactic material presented relates closely to the laboratory and clinical experiences offered. The program will provide a student with the knowledge and experience necessary to proceed independently in operative dentistry during the fourth year of training.

Graduate Program

The Department of Operative Dentistry offers a program of advanced training designed to prepare dentists for teaching, research, and practice. Since operative dentistry is not a specialty area of dentistry, there is ample opportunity in the graduate program for the student to pursue courses which are of particular interest. Students may take courses for either a Master of Science degree or for a certificate in operative dentistry.

Requirements for the Master of Science degree include satisfactory completion of 48 semester hours of specified graduate-level courses; preparation of an acceptable thesis based on original research; and formal defense of the thesis and examination of the candidate by an examining committee.

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.D.S. Program

6214 Operative Dentistry Laboratory for Hygienists 3 h.

6215 Operative Dentistry Laboratory 3 h.

6216 Operative Dentistry Laboratory II 3 h.

6216 Operative Dentistry Laboratory I 3 h.

6218 Operative Dentistry I 3 h.

6220 Operative Dentistry II 3 h.

6222 Operative Dentistry III 3 h.

6224 Operative Dentistry IV 3 h.

6226 Operative Dentistry V 3 h.

6228 Operative Dentistry VI 3 h.

6230 Operative Dentistry VII 3 h.

6232 Operative Dentistry VIII 3 h.

6234 Operative Dentistry IX 3 h.

6236 Operative Dentistry X 3 h.

6238 Operative Dentistry XI 3 h.

6240 Operative Dentistry XII 3 h.

6242 Operative Dentistry XIII 3 h.

6244 Operative Dentistry XIV 3 h.

6246 Operative Dentistry XV 3 h.

6248 Operative Dentistry XVI 3 h.

6250 Operative Dentistry XVII 3 h.

6252 Operative Dentistry XVIII 3 h.

6254 Operative Dentistry XIX 3 h.

6256 Operative Dentistry XX 3 h.

6258 Operative Dentistry XXI 3 h.

6260 Operative Dentistry XXII 3 h.

6262 Operative Dentistry XXIII 3 h.

6264 Operative Dentistry XXIV 3 h.

6266 Operative Dentistry XXV 3 h.

6268 Operative Dentistry XXVI 3 h.

6270 Operative Dentistry XXVII 3 h.

6272 Operative Dentistry XXVIII 3 h.

6274 Operative Dentistry XXIX 3 h.

6276 Operative Dentistry XXX 3 h.

6278 Operative Dentistry XXXI 3 h.

6280 Operative Dentistry XXXII 3 h.

6282 Operative Dentistry XXXIII 3 h.

6284 Operative Dentistry XXXIV 3 h.

6286 Operative Dentistry XXXV 3 h.

6288 Operative Dentistry XXXVI 3 h.

6290 Operative Dentistry XXXVII 3 h.

6292 Operative Dentistry XXXVIII 3 h.

6294 Operative Dentistry XXXIX 3 h.

6296 Operative Dentistry XL 3 h.

6298 Operative Dentistry XLI 3 h.

6300 Operative Dentistry XLII 3 h.

6302 Operative Dentistry XLIII 3 h.

6304 Operative Dentistry XLIV 3 h.

6306 Operative Dentistry XLV 3 h.

6308 Operative Dentistry XLVI 3 h.

6310 Operative Dentistry XLVII 3 h.

6312 Operative Dentistry XLVIII 3 h.

6314 Operative Dentistry XLIX 3 h.

6316 Operative Dentistry L 3 h.

6318 Operative Dentistry LI 3 h.

6320 Operative Dentistry LII 3 h.

6322 Operative Dentistry LIII 3 h.

6324 Operative Dentistry LIV 3 h.

6326 Operative Dentistry LV 3 h.

6328 Operative Dentistry LVII 3 h.

6330 Operative Dentistry LVIII 3 h.

6332 Operative Dentistry LIX 3 h.

6334 Operative Dentistry LX 3 h.

6336 Operative Dentistry LXI 3 h.

6338 Operative Dentistry LXII 3 h.

6340 Operative Dentistry LXIII 3 h.

6342 Operative Dentistry LXIV 3 h.
Oral Pathology and Diagnosis

Predoctoral Program

The department’s primary objective is to provide instruction to dental students and other health-profession students in the etiology and natural history of diseases occurring in and about the oral cavity, instruction includes the clinical, laboratory, radiographic, and microscopic features of these diseases and their management. Instruction is provided in the physical evaluation of patients to identify systemic diseases and their influence on dental therapy, and the influence of dental treatment on systemic diseases.

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.

Candidates for the Master of Science degree are expected to develop substantial ability 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 are 45 semester hours of graduate credit and a thesis. The required courses are:

- 69:206 Problems in Biological Methods in the Biomedical Sciences 3 s.h.
- 69:208 Dental Health Science and Disease 2 s.h.
- 69:213 Tissue and Bioceramic Methods in Oral Surgery 3 s.h.
- 69:211 General Pathology for Medical Students 5 s.h.
- 69:212 Oral Pathology for Medical Students 5 s.h.
- 69:220 General Pathology for Medical Students 5 s.h.
- 69:221 Oral Pathology for Medical Students 5 s.h.
- 69:222 Advanced Oral Pathology 3 s.h.
- 69:231 Dental Sciences Research Methodology 2 s.h.
- 69:199 Basic Odontologic Science 4 s.h.
- 69:200 Oral Pathology and Diagnosis Literature Review 2 s.h.
- 69:201 General Pathology for Medical Students 5 s.h.
- 69:202 Oral Pathology for Medical Students 5 s.h.
- 69:230 Research in Oral Pathology and Diagnosis 2 s.h.
- 69:250 Pathologic Processes 2 s.h.
- 88:256 Advanced Oral Pathology 3 s.h.
- 88:257 General Oral Pathology 3 s.h.
- 88:258 Advanced Oral Pathology 3 s.h.

Certification Program

The program for certification in oral pathology combines academic studies with extensive laboratory practice of oral pathology under staff supervision, and requires a minimum of 24 months of full-time work for completion. Qualification for the certificate includes completion of all required courses with a passing grade, demonstration of competence in the practice of oral pathology, and a satisfactory grade in the final comprehensive examination before an examination committee composed of members of the graduate faculty in the Department of Oral Pathology and Diagnosis.

Required courses are:

- 69:206 Problems in Oral Pathology and Diagnosis Literature Review 2 s.h.
- 69:213 Tissue and Bioceramic Methods in Oral Surgery 3 s.h.
- 69:211 General Pathology for Medical Students 5 s.h.
- 69:212 Oral Pathology for Medical Students 5 s.h.
- 69:220 General Pathology for Medical Students 5 s.h.
- 69:221 Oral Pathology for Medical Students 5 s.h.
- 69:222 Advanced Oral Pathology 3 s.h.
- 69:231 Dental Sciences Research Methodology 2 s.h.
- 69:199 Basic Odontologic Science 4 s.h.
- 69:200 Oral Pathology and Diagnosis Literature Review 2 s.h.
- 69:201 General Pathology for Medical Students 5 s.h.
- 69:202 Oral Pathology for Medical Students 5 s.h.
- 69:230 Research in Oral Pathology and Diagnosis 2 s.h.
- 69:250 Pathologic Processes 2 s.h.
- 88:256 Advanced Oral Pathology 3 s.h.
- 88:257 General Oral Pathology 3 s.h.
- 88:258 Advanced Oral Pathology 3 s.h.

Facilities

The laboratories of the department are equipped for teaching in histopathology, immunopathology, laboratory diagnosis, and experimental pathology. Laboratories are available with facilities for investigation of ultrastructure of both soft and calcified tissues.

Admission Requirements

Applicants must have completed an accredited program leading to the D.D.S. or D.M.D. degree or its foreign equivalent, with a minimum cumulative grade-point average of 2.7 (4.0 scales). and must present satisfactory scores in the Graduate Record Examination (GRE) Aptitude Test. Acceptance of any applicant meeting the requirements for admission will rest with the departmental staff. Prospective applicants are encouraged to discuss program requirements with the head of the department prior to application.

Courses

69:00 Introduction to Oral Pathology 1 s.h.
- Emphasis on basic processes of disease and the involvement of tissue processes in the creation of oral diseases. Required for dental hygienists.

69:01 Oral Pathology for Dental Hygienists 3 s.h.
- Survey of major processes described; emphasis on etiology, pathogenesis, and treatment of oral disease. Required for dental hygienists.

69:02 Dental Hygiene for Dental Hygienists 1 s.h.
- Prophylaxis and scaling, periodontal disease, growth and development of the oral cavity.

69:03 Dental Hygiene for Dental Hygienists 1 s.h.
- Prophylaxis, restorative, radiation hygiene, infections of the oral cavity.

69:04 Exposed Clinical Experience in Taking Dental Radiographs, Processing and Reading Films 2 s.h.

69:100 Introduction to Diagnosis and Radiographs 1 s.h.
- Introduction to methods of clinical and radiographic examination and record keeping correlated with stains and symptoms.

69:101 Introduction to Diagnosis and Radiographs 1 s.h.
- Introduction to methods of clinical and radiographic examination and record keeping correlated with stains and symptoms.
DENTISTRY/Oral Surgery

08.120 Oral Pathology
4 ls.
Lecture, conference, demonstration, laboratory. Emphasis is on diseases involving oral tissues. Prerequisites: Consent of instructor.

08.124 Oral Diagnosis and Treatment Planning
3 ls.

08.125 Practical Dentistry and Radiology
1 ls.
Fundamental principles and techniques in diagnosis, pathology, and radiology. Prerequisites: Consent of Instructor.

08.126 Dental Disease Manifestations
1 ls.
Review and presentation of current knowledge to dental students. Designed to provide the student with the basic information required to evaluate and treat patients.

08.127 Oral Pathology and Radiology
1 ls.
Study and practice of diagnosis of odontal diseases by clinical, laboratory, and radiographic techniques; principles presented in clinical case analyses. Formal, second-year.

08.128 Ocular Dentistry
1 ls.
Supervised experience in analyzing and treating ocular disease as it affects the oral cavity. Concepts, principles of radiographic interpretation. Third-year.

08.129 Topics in Oral Pathology
1 ls.
Lectures and demonstrations in concentrated areas of research are presented. Course designed for students in graduate and professional colleges.

Graduate Courses

08.201 Oral Pathology and Tissue Culture Literature Review
1 ls.
Assigned reading and preparation of abstracts. Prerequisite: Consent of instructor.

08.202 Nutrition of Oral and Personal Disease
1 ls.
Physiological examination of the head and neck, hematopoiesis, and of diseases of the oral and personal areas as they are related to nutrition. Prerequisites: Consent of instructor. Available to graduate students.

08.203 Anatomy in Oral Pathology
1 ls.
Anatomic features necessary for understanding and evaluating the behavior of oral diseases. Clinical participation courses. Prerequisite: Consent of instructor.

08.204 Physical, Laboratory, and Histological Features of Oral Tissue
1 ls.
Didactic seminar series. Lecture series invites case analysis from clinical, laboratory, and histological perspectives. Practical and personal reviews. Prerequisites: Consent of instructor.

08.205 Surgical Oral Pathology
1 ls.
Practical experience in the surgical management of oral pathologic processes. Prerequisites: Consent of instructor; 80.204 for advanced registration.

08.206 Research in Oral Pathology and Radiology
1 ls.
Projects for research, experimental, and clinical studies to be approved by other qualified students whose interests coincide with available experimental research facilities. Includes thesis preparation. May be repeated. Prerequisites: Consent of instructor.

08.207 Hematology
1 ls.
Anatomy to identify the active dental and oral pathology laboratory services for advanced training in traditional and modern treatment planning and treatment. Prerequisite: Consent of instructor. Prerequisites: Consent of instructor and consent of instructor.

08.211 Oral Hospital Pathology
1 ls.
Participation in clinical cases related to oral pathology, including physical diagnosis, microbiology, histopathology, literature reviews, general surgical pathology, and 80.242.

08.242 Dental Radiology Advanced Clinic
4 ls.
Advanced internal and extracurricular radiographic procedures. Interpretation. Prerequisite: Consent of instructor.

08.250 Pathologic Processes
3 ls.
Pathologic processes of diseases, with emphasis on oral processes. Prerequisite: Consent of instructor.

08.306 Advanced Oral Pathology
3 ls.
A study of advanced clinical and surgical concepts in oral diagnosis and treatment planning. Prerequisite: Consent of instructor.

Oral Surgery

Department Head: Donald B. Oester
Director of Graduate Studies: Donald B. Oester
Director of Continuing Education: Donald B. Oester

08.520 Dental Surgeon
3 ls.
Prerequisite: Consent of instructor.

08.521 Oral Pathology
3 ls.
Prerequisite: Consent of instructor. Available to graduate students.

Oral Surgery

Residency Program

The aim of the residency program in oral surgery is to provide preparation for specialty practice. The program is designed to combine clinical and didactic training on an individual basis. Every effort is made to adapt the program to the interests, abilities, and development of the individual student. However, it is essential to meet certain fundamental requirements.

The recommendations of the Council on Dental Education of the American Dental Association, the Committee on Graduate Training of the American Society of Oral and Maxillofacial Surgeons, and the American Board of Oral and Maxillofacial Surgery have been carefully considered in planning the structure and scope of training.

The residency period covers three years of hospital training, providing an orientation to hospital procedures, integration of basic and clinical sciences, acquisition of the principles of surgery, and familiarization with the various aspects of health services. Competence in clinical oral surgery requires knowledge of the basic medical sciences related to the specialty. Therefore, in addition to hospital and clinical training, the resident takes advanced coursework in such subjects as applied pharmacology, surgical anatomy, pathology, physiology, and microbiology, and reviews such closely-related disciplines as prosthodontics, orthodontics, oral pathology, 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 anesthesiology, surgery, emergency medicine, and has a designated rotation in the Department of Anesthesiology. Previous advanced training in physical diagnosis, physiology, pharmacology, and pathology now assume greater clinical significance. Increased responsibility in the operating room as first assistant and

Presented through didactic and clinical experiences.
Orthodontics

Department Head: John A. Dean
Faculty: associates George F. Andrews, Dominik S. Dinius, Harlan W. James, Charles R. Krabbe, assistant professor Robert H. Shirley
Degree offered: M.S.

Predoctoral Program

The purpose of the predoctoral program in orthodontics is to enable the general practitioner of dentistry to recognize, diagnose, and treat with competence simple malocclusions of the teeth.

Lecture courses guide the student in 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 appliances are fabricated. The department supervises a volunteer program of clinical treatment of selected patients.

Graduate Program

The purpose of the graduate program in orthodontics is to educate specialists capable of diagnosing and treating any malocclusion of the teeth requiring comprehensive care. The specialist should be familiar with and able to critically analyze biology, biomechanics, diagnosis, and treatment concepts in orthodontics.

Successful completion of a 23-month period of intensive study, including lecture courses, seminars, clinical practice, and a research paper, qualifies a student for the Certificate of Orthodontics. If a student satisfactorily completes a thesis based on an original research project, he or she will qualify for an M.S. degree in addition to the certificate.

Opportunities are available for research and independent study in the department. Special facilities for research in biomechanics and craniofacial growth are available.

Interaction with other departments provides learning and research opportunities in surgical orthodontics, ortho-lip and palate treatment, speech pathoology, animal experimentation and human growth.

Admission

Admission requires the D.D.S. degree, or its equivalent, and satisfaction of Graduate College requirements.

The application deadline is October 1 for the class starting July 1. Applicants will be requested to come to the University for interviews with the faculty of the department.

Courses

83.110 Growth and Development 1.0A
Introduction to the skeletal and skeletal aspects of the human being, as well as the neurogenic components and their developmental aspects.

83.120 Orthodontic Diagnosis and Its Biological Foundation 1.0A
Introduction to the various ways of orthodontic diagnosis and the principles of orthodontic diagnosis. The effects of the orthodontic treatment on the patient's facial appearance and growth of the head and neck, growth of the cranial base, and the craniofacial region. The study of the craniofacial region includes development of head, physiology of craniofacial tissues, maxillofacial structures, growth and development, genetics variability in the face and mouth, growth of the cranial base and the craniofacial region.

83.133 Orthodontic Laboratory Procedures II 1.0A
Practical experience in taking and analyzing orthodontic diagnostic records, developing treatment planning and giving orthodontic care.

83.134 Orthodontic Treatment 1.0A
Practical experience in taking and analyzing orthodontic diagnostic records, developing treatment planning and giving orthodontic care.

83.144 Delivery of Orthodontic Services by the General Practitioner 1.0A
Practical experience in the direct patient care of the orthodontic patient, including the initial patient examination, diagnosis, treatment planning, patient education, and the supervision of the orthodontic patient. The emphasis is on the development of the patient's self-confidence and self-respect.

83.160 Orthodontic Practice 1.0A
Introduction to the concepts of orthodontic practice and the role of the orthodontic practitioner in the community.

83.210 Orthodontic Seminar 1.0A
Critical analysis of case histories, the role of the orthodontic practitioner in the community, and the role of the orthodontic practitioner in the community.

83.310 Research Orthodontics 1.0A
Practical experience in the direct patient care of the orthodontic patient, including the initial patient examination, diagnosis, treatment planning, patient education, and the supervision of the orthodontic patient. The emphasis is on the development of the patient's self-confidence and self-respect.

83.320 Orthodontic Journal Club 1.0A
Reading of current biological and technical publications, students critically evaluate articles, are encouraged to think critically about new knowledge.
Pedodontics

Department Head: Stephen H. W., MD
Faculty: professors: Clarence A. Bell, Jr., U. L. Kendrick, Arthur J. Nolting, Less M. Silerstam, Stephen H. W.
Associate professors: Bruce H. Clarkson, Jerry J. Weller, assistant in instruction: Donna O'Donnel, Louise Langan
Degree offered: M.D. (Certificate also offered)

The Department of Pedodontics provides instruction in dental and graduate students in the prevention and treatment of dental diseases in children. Instruction covers both didactic, laboratory, and clinical experiences. It gives special consideration to reviewing current literature and managing dental problems of handicapped children, and emphasizes efficient treatment through proper utilization of dental auxiliary personnel and record management.

Research Opportunities

Research carried out by 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 state offices, committee memberships, consultancies, and honors in professional organizations. They serve as reviewers for several professional journals and federal granting agencies. They also participate regularly in continuing education programs for dentists and other health science personnel. Several members are Diplomates of the American Board of Pedodontics.

Financial Aid

(Specific support is available to qualified students through a grant from the Office of Maternal Child Health, Bureau of Community Health Services, Department of Health, Education, and Welfare.

Admission

Apply to the Graduate College.

Courses

90:146 Pedodontic Diagnosis and Treatment

(3.5 credits)

Concept of growth and development, behavior management, and preventive recognition techniques for pediatric patient.

90:148 Clinical Pedodontics

(3.5 credits)

Comprehensive clinical management of pediatric patient.

90:149 Clinical Seminar in Pedodontics

(3.5 credits)

Discussions of patient management, case histories, and treatment philosophies.

Primarily for Graduates

90:131 Introduction to Advanced Clinical Pediatrics

(2.5 credits)

For first-year graduate students, emphasis on growth and development of child, management, and therapy.

90:290 Microscopic and Ultrasonic Laboratory

(1.5 credits)

Laboratory: Variables of interproximal orthodontic appliances.

90:310 Growth and Development Literature and Lab

(2.5 credits)

Critical review and senior class project of growth and development of the child, with particular emphasis on principles and practice of interproximal orthodontics. Laboratory demonstrations of biomechanics in appliance formation is emphasized.

90:320 Advanced Electro Microscopy

(1.5 credits)

90:325 Advanced Orthodontics

(2.5 credits)

Discussions of growth and development, behavior management, preventive orthodontics, and techniques and devices of pediatric orthodontics.

90:326 Pedodontics: cares' orthodontics

(1.5 credits)

Discussions of preventive orthodontics, fluoride therapy, team and nutrition guidance, aesthetics, pharmacology, minor oral surgery are related to pediatric patient.

90:337 Pedodontics: Literature Review

(1.5 credits)

Behavior management, preventive orthodontics.

90:339 Pediatrics: Literature Review

(1.3 credits)

Community responsibilities and practice management, preventive orthodontics, and advanced preventive orthodontics.

90:349 Dental Management of the Handicapped Child

(1.5 credits)

Principles and techniques for managing various handicapping conditions of children in the dental office.

90:350 Research in Pedodontics

(2.5 credits)

Research design and completion of an original research project is required. The results are to be presented in a thesis form.

90:351 Thesis Preparation

(3.5 credits)

Preparation of original research project and completion of the thesis.

90:450 Advanced Clinical Pediatrics

(1.5 credits)

Comprehensive clinical management of pediatric patient in areas of preventive orthodontics, operative therapy, endodontics, and child behavior.
Master of Science Program
The Master of Science program is designed primarily to provide training for teaching, research, and specialization in periodontology. The program meets all eligibility requirements for American Board of Periodontology certification. The program requires:
Satisfactory completion of a minimum of at least 76 semester hours of required and elective coursework:
Preparation and defense of an acceptable thesis based on original research requiring 11 semester hours of research and three semester-hour preparations of these preparations; and
Satisfactory completion of a comprehensive written and oral examination.
Completion of the program requires 20 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 dentists for careers in teaching and research in periodontal diseases. Such programs will 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 for the clinical practice of periodontology.
Completion of the program requires 24 calendar months of full-time study, with:
Satisfactory completion of a minimum of 80 semester hours of required and elective courses;
Satisfactory completion of a comprehensive written and oral examination; and
An acceptable literature review paper. Opportunities are provided for experience in clinical and basic research. The certification program may be combined with the Ph.D. program.

Facilities
The department has 20 modern and well-equipped operatories devoted exclusively to periodontics, and access to hospital experience in the adjacent University Hospitals and the Veterans Administration Medical Center. Research facilities include a departmental research laboratory, and collegial laboratories in histology and histochemistry, microbiology and biochemistry, electron microscopy with EM and scan capabilities, and growth and development. These collegial facilities are in addition to those available by arrangement in the University Hospitals, the Veterans Administration Medical Center, and in the basic science departments.

Financial Aid
The applicant must be financially prepared to undertake uninterrupted studies. Assistantships are offered dependent upon available resources. The Ph.D. program is supported by a full research stipend.

Admission
Admission to graduate study in periodontics requires the O.D.S. degree or its equivalent, and satisfaction of Graduate College admission requirements. (See "Graduate College" section of the Catalog.) In accordance to the Ph.D. program, the department gives strong preference to applicants with the M.S. degree. Interviews are encouraged but not mandatory.
Courses

Predoctoral

10311 Methods for Advanced Studies in Oral Biology 3.0h
Examination of advanced research techniques which involve the use of the present concepts of nomenclature, selective dental tissues and materials. Oral histology seminars.

10353 Periodontal Literature Review 1.0h
Oral histology seminars over years.

10352 Periodontology Clinics I 1.0h
Oral histology seminars over years.

10353 Periodontal Literature Review 1.0h
Oral histology seminars over years.

10354 Periodontal Literature Review 1.0h
Oral histology seminars over years.

10355 Periodontal Literature Review 1.0h
Oral histology seminars over years.

10356 Advanced Clinical Periodontics 1.0h
Comprehensive clinical management of the periodontal patient with emphasis on periodontal correction of the complex cases. Required each semester.

Graduate

10351 Advanced Periodontics 1.0h
Provides training in graduate student with comprehensive review of periodontal therapy.

10352 Clinical Senior in Periodontics 1.0h
Comprehensive management of periodontal patients presented with emphasis on treatment planning and phase documentation and preparation for comprehensive dental therapy. Content dental science seminars increase. Required each fall and spring semester.

10353 Methods of Instruction in Periodontics 1.0h
Examine case studies in periodontics, including behavioral objectives and methods of instruction.

10354 Preventive Teaching in Periodontics 1.0h
Present case studies in restorative, periodontal, and clinical teaching in periodontics.

10355 Methods of Advanced in Periodontics 1.0h
Oral histology seminars.

10356 Pediatric Dentistry I 1.0h

10357 Dental Hygiene I 1.0h
Review and assessment of student's knowledge of key concepts relevant to oral health problems. Oral histology seminars.

10358 Biological Aspects of Periodontics 1.0h
Review and discussion of relevant biological concept of periodontal disease. Oral histology seminars.

10359 Periodontics and Microbiology 1.0h
Comprehensive view of oral health problems and correlation of genetics and periodontal health. Oral histology seminars.

10360 Dental Research Methods 1.0h
Provides techniques with practical procedures designed to deal with periodontal research. Oral histology seminars.

10361 Dental Science Research Methodology 1.0h
Provides techniques with practical procedures designed to deal with periodontal research. Oral histology seminars.

Preventive and Community Dentistry

Director: James D. News
Assistant: Richard B. Neumann
Degree offered: M.S.

Programs in preventive and community dentistry are designed to increase dental students' awareness of current health needs and to encourage them to develop and implement approaches to alleviate these needs.

Extramural programs provide students with opportunities to interact with health care teams and members of communities in low-income areas. The department conducts five full-time extramural programs throughout the state.

Using the community as the classroom, students are able to observe and participate in a variety of activities intended to make them aware of the sociocultural obligations they must assume in order to practice effectively.

Included in the department's resources are two mobile dental vans, one with five operators and a second smaller unit designed for prevention programs. The vans are operated throughout Iowa, and give senior dental and dental hygiene students and graduates an experience which closely simulates community dental practice.

Master of Science Program

The Master of Science degree program is designed to prepare students in community dentistry, with emphasis on research, teaching, or administration.

The program objective is to help students achieve a high degree of professional competence in their respective areas of special interest. Successful graduates will have met educational requirements necessary to establish their eligibility for the American Board of Dental Public Health.

The program requires a minimum of 42 semester hours of coursework. The full-time program requires a minimum of 18 months of coursework and practicums to meet the M.S. and residency requirements.

Coursesc

Predoctoral

11101 Preventive Dentistry I 3.0h
Introduction to the dental student, includes lectures, laboratory, small-group discussions, and clinical experiences; students identify health needs and methods of control. Focus on patient education and evaluation of success in controlling their oral health.

11102 Preventive Dentistry II 3.0h
Specified data discussing dental plaque and two related diseases: caries and periodontal disease. Data given to support the use of fluoride, sealants, and oral care methods for the control and prevention of diseases and periodontal disease.

11103 Preventive Dentistry III 3.0h
Preventive methods for the control and removal of plaque. Environmental factors and habits, clinical examination of oral tissues, and the relationship of oral health to general health. Knowledge regarding the etiology, prevention, and control of oral diseases, plaque control regimens, and communication skills.

11104 Preventive Dentistry IV 3.0h
Fundamental description of instrumentation for detection and removal of plaque consisted with emphasis on oral hygiene and patient education. Oral health habits and their relationship to health in the community.

11105 Preventive Dentistry V 3.0h
Clinical program to allow the student to provide a complete prophylaxis with emphasis on patient education and active participation, and skill in performing periodontal examination, periodontal reattachment, and reconstruction with emphasis on evaluation and maintenance.

11106 Clinical Photography 1.0h
Programs and laboratory sessions dealing with photography in general and specific concentration on dental photographic systems and their related problems.
290 Community Dentistry

3.6 Design research to improve an aspect of community dental care, emphasizing economic, social, and cultural factors. Develop plans for community health education, including the use of local press, public meetings, and other media.

11.13.12 Community Geriatric Experience

An experience in geriatric patient care is required. Students are expected to develop an appreciation for the needs of the elderly, both in terms of health care and social services. A minimum of 20 hours must be completed, with a detailed report submitted to the instructor.

11.13.13 Clinical Skills for Community Dentistry

Students must demonstrate competence in basic clinical skills, including oral examination, teeth cleaning, and basic procedures for maintaining oral health.

11.13.14 Oral Health in the Community

This experience should include the development of oral health education programs, community outreach activities, and the evaluation of the effectiveness of these programs.

Graduate

11.13.21 Clinic Review in Preventive and Community Dentistry

This course reviews clinical procedures and techniques used in preventive and community dentistry, focusing on the evaluation and management of oral health problems.

11.13.22 Independent Study in Preventive and Community Dentistry

Individual study in an area of special interest to the student under the supervision of a faculty member.

11.13.23 Clinical Research in Community Dentistry

Research in community dental health, focusing on the development and evaluation of new techniques and procedures.

11.13.24 Community Health Education

Prepares students to design and implement community health education programs, focusing on oral health education.

11.13.25 Epidemiology of Community Dentistry

An in-depth study of the epidemiology of oral diseases, focusing on the identification of risk factors and the development of prevention strategies.

11.13.26 Public Health Dentistry

An in-depth study of the role of dentists in public health, focusing on the development and implementation of public health policies.

Removable Prosthodontics

11.22.11 Department of Removable Prosthodontics

Provides knowledge and skills in the design, fabrication, and evaluation of removable prostheses.

11.22.12 Clinical Experience in Removable Prosthodontics

Students must demonstrate competence in the clinical application of removable prostheses.

11.22.13 Research in Removable Prosthodontics

Research in the development and evaluation of new removable prosthodontic materials and techniques.

Courses

84-123 Prosthodontic Materials Laboratory

The theory and fabrication of dental restorations and prostheses.

84-140 Removable Prosthodontic Techniques

Techniques in the design and fabrication of removable prostheses.

84-151 Prosthodontic Technique Laboratory

Laboratory work in the design and fabrication of prostheses.

84-152 Prosthodontic Laboratory

Clinical procedures in the design and fabrication of prostheses.

84-256 Removable Partial Denture Service

Service in the design and fabrication of removable partial dentures.

84-257 Complete Denture Service

Service in the design and fabrication of complete dentures.

84-258 Prosthodontic Laboratory

Laboratory work in the design and fabrication of prostheses.

84-259 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-260 Advanced Clinical Removable Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-261 Dental Hygiene Methods

Methods in the design and fabrication of prostheses.

84-262 Prosthodontic Research

Research in the design and fabrication of prostheses.

84-263 Prosthodontic Laboratory

Laboratory work in the design and fabrication of prostheses.

84-264 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-265 Prosthodontic Research

Research in the design and fabrication of prostheses.

84-266 Prosthodontic Laboratory

Laboratory work in the design and fabrication of prostheses.

84-267 Prosthodontic Research

Research in the design and fabrication of prostheses.

84-268 Prosthodontic Laboratory

Laboratory work in the design and fabrication of prostheses.

84-269 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-270 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-271 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-272 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-273 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-274 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-275 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-276 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-277 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-278 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-279 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

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Clinical procedures in the design and fabrication of removable partial dentures.

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Clinical procedures in the design and fabrication of removable partial dentures.

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Clinical procedures in the design and fabrication of removable partial dentures.

84-284 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-285 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-286 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-287 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-288 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-289 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-290 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-291 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-292 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-293 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.

84-294 Removable Partial Prosthodontics

Clinical procedures in the design and fabrication of removable partial dentures.
Removable Prosthodontics (DENTISTRY)

94039 Journal Club
Review of current literature in prosthodontics.

94031 Library Assignment: Removable Prosthodontics
Discussion of assigned readings that are considered relevant to removale prosthodontic 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 educational testing and measurement industry, thus making Iowa City one of the best known centers for this educational specialty.

The college has eight divisions: Post-Secondary and Continuing Education; Educational Administration; Early Childhood and Elementary Education; Educational Psychology, Measurement, and Statistics; Secondary Education; Counselor Education; Special Education; and Instructional Design and Technology. The college also has a Social Foundations of Education Unit.

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 graduate the highest degree approved. The teacher preparation programs are also reviewed and approved by the Iowa Department of Public Instruction.

**Teacher Education Programs**

The College of Education offers undergraduate programs in teacher education leading to state of Iowa teacher certification in early childhood and elementary teaching, secondary school teaching, teaching in special education for mentally retarded and physically handicapped children, and health occupations education.

Students admitted to the Teacher Education Program (T.E.P.) are degree candidates in the College of Liberal Arts or College of Business Administration and must complete the requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of General Studies, or Bachelor of Business Administration degrees as explained in those colleges' sections of the University Catalog. Policies, rules, and regulations of these colleges apply to students in the T.E.P. Students seeking the B.S. degree should especially note that a maximum of 40 semester hours of credit earned in the College of Education may be applied toward the degree.

**Admission**

Students who are interested in becoming teachers should indicate their proposed teaching major on the application for admission to The University of Iowa. Students who decide at a later date to enter the Teacher Education Program must declare the appropriate teaching major as their major in the College of Liberal Arts Advisory Office, 116 Sonne Hall, and submit an Application for Admission to the Teacher Education Program to the Office of Admissions, 107 Ceva Hall by May 16 preceding the academic year in which the applicant plans to enroll in professional education courses. Applications received after that date will be reviewed only if faculty and practicum resources permit.

Although treatment is admitted to the T.E.P., students are not eligible to enroll in professional education courses before they have completed 28 semester hours. The academic records of all students admitted to the T.E.P. will be reviewed at the end of each semester and students who have not maintained a 2.2 grade-point average on all coursework attempted and on all University of Iowa coursework will be
dropped from the T.E.P. Students who are dropped from the T.E.P. may reapply and may be reinstated when the required 2.2 grade-point average is achieved. If enrollment limits have not been reached.

Because of the limits of faculty and teaching status, it may be necessary to restrict enrollments in early childhood education, elementary education, and special education, and in social studies and English in secondary education. In the event that the number of T.E.P. applicants exceeds the capacity of a program, students will be selected by rank order on the criteria established by the faculty.

To be admitted to foundation courses in education, an undergraduate student must:

- Have been admitted to the University of Iowa as a degree candidate;
- Have completed the American College Tests;
- Have attained sophomore standing (16th semester hour) prior to the semester during which he or she seeks to enroll in the foundations of education sequence of courses;
- Have achieved a 2.2 grade-point average on all college coursework attempted and coursework completed at the University of Iowa; and
- Have submitted an application for Admission to the Teacher Education Program (see date above).

Graduate students must:

- Have been admitted to the Graduate College;
- Have a cumulative grade-point average of not less than 2.2 (2.7 for M.A.T.) on undergraduate coursework; and
- Have been admitted to a specific certification program (e.g., elementary education, special education, or secondary English).

Student Teaching

The final phase of the Teacher Education Program is the professional semester, devoted to on-site student teaching and directed observation in a variety of schools. Periodic seminars provide for discussion and evaluation of student teachers' experiences. The student teaching requirement may not be met by transfer credits accepted under unusual circumstances and with approval in advance.

To register for student teaching, the student must have:

- Satisfactorily completed 8 semester hour hours during one academic session in residence at The University of Iowa;
- Satisfactorily completed 78:17 Educational Psychology and Measurement, 78:61 Additional Elements for Instruction (Elementary), and 78-100 Introduction: Elementary and Early Childhood Teaching or 78-100 Introduction: Secondary School Teaching and 78:91 Pre-Education Practicum or 78:91 Pre-Education Practicum;
- Satisfactorily completed the appropriate methods courses;
- Maintained a cumulative grade-point average of not less than 2.2 if an undergraduate student, or 2.7 if an M.A.T. candidate, on all college work attempted, all college work attempted at The University of Iowa, and all work attempted in his or her teaching major; and
- Filed application for an assignment by March 15 preceding the academic year during which student teaching is desired.

Waivers

Students who have completed practicum/age experience or courses which they feel should be considered in lieu of requirements should consult with their advisers concerning waiver procedures.

The CUTE Program

Students who feel they may better advance their educational interests through student teaching in an inner-city situation, and who are interested in working with inner-city youth, may apply for the Cooperative Urban Teacher Education (CUTE) program through the Director of Student Teaching, Iowa City. Iowa is one of several midwestern institutions which place selected students in the Kansas City inner-city system. The program is open to any student who meets the requirements for student teaching.

Overseas Student Teaching

In cooperation with the University of Wisconsin-River Falls, a split student teaching assignment is available during weeks in one of our regular centers and eight weeks in Australia, England, Republic of Ireland, Scotland, or Wales. Students must make their own travel arrangements. Housing will be located for the students by the on-site coordinator. Students electing this program must meet the regular requirements for student teaching.

State Requirements

Certification to teach in Iowa requires an education component in human relations. This requirement can be met with 7X:170 Human Relations for the Classroom Teacher.

Certification to teach in many states requires a course in U.S. history or in American government. An initial certificate may be obtained in Iowa without meeting this requirement. However, a certified teacher who has not previously met the requirement must complete a minimum of 2 semester hours of U.S. history or American government before his or her certificate can be renewed. Students are therefore encouraged to include such a course in their preschool program, key of the following courses will likely meet the requirement:

30:1 Introduction to American Government 4 s.h.
30:110 The American Political System 4 s.h.
Up to 4 semester hours may also be used toward social science core requirement of the College of Liberal Arts:
18:81 American History 3 s.h.
18:82 American History 3 s.h.
87:181 The Colonial Period in America 3 s.h.
18:182 American Revolution Period 1740-1789 3 s.h.
18:183 United States in the Early Republic 3 s.h.
### General Undergraduate Minor

This minor is designed to encourage students to explore possible professions within the field of education. The student is free to choose a combination of courses, provided that she selects at least one course from each of the following six areas.

<table>
<thead>
<tr>
<th>Structure of Education</th>
<th>2-3 s.h.</th>
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<tbody>
<tr>
<td>7F:140 U.S. Educational System and Society</td>
<td>3 s.h.</td>
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<tr>
<td>7E:110 Introduction: Elementary and Early Childhood Teaching</td>
<td>3 s.h.</td>
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<tr>
<td>7H:110: Introduction to Continuing Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7H:100 Problems and Policies in Higher Education</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>75:100 Introduction: Secondary School Teaching</td>
<td>2 s.h.</td>
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<tr>
<td>75:191 Introduction to Education</td>
<td>3 s.h.</td>
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<tr>
<th>History, Philosophy, and Sociology of Education</th>
<th>2-3 s.h.</th>
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<tbody>
<tr>
<td>7F:102 History of American Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:107 History of Western Education</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7F:117 Philosophes of Education</td>
<td>p-3, 5 s.h.</td>
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<tr>
<td>7F:130 Educational Sociology</td>
<td>2-3 s.h.</td>
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<tr>
<td>7H:187 Philosophy of Vocational Education</td>
<td>2 s.h.</td>
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<tr>
<th>Psychology of Education</th>
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<tr>
<td>7P:124 Educational Psychology and Measurement</td>
<td>3 s.h.</td>
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<tr>
<td>7P:106 Child Development</td>
<td>3 s.h.</td>
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<tr>
<td>7P:107 Psychological Bases of Instructional Design</td>
<td>3 s.h.</td>
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<tr>
<td>7P:108 Socialization of the School-Age Child</td>
<td>2-3 s.h.</td>
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<tr>
<td>7P:101 Educational Psychology</td>
<td>3-4 s.h.</td>
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<tr>
<td>7U:100 Exceptional Children</td>
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<tr>
<th>Curriculum Foundations</th>
<th>3 s.h.</th>
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<tbody>
<tr>
<td>7W:120 Introduction to Instructional Design and Technology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7E:180 Curriculum Foundations</td>
<td>2-3 s.h.</td>
</tr>
<tr>
<td>7E:188 Curriculum Foundations</td>
<td>2-3 s.h.</td>
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<tr>
<th>Cross-cultural Factors</th>
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<tr>
<td>7U:120 The Culturally Different in Educational Settings</td>
<td>3 s.h.</td>
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<tr>
<td>7F:144 Education, Race, and Ethnicity</td>
<td>3 s.h.</td>
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<tr>
<td>7C:181 Psychological Aspects of Black Behavior and Personality</td>
<td>3 s.h.</td>
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<tr>
<td>7E:186 Multicultural Concepts and Educational Systems</td>
<td>3 s.h.</td>
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<th>Teaching Methodology</th>
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<tr>
<td>7E:100 Methods Elementary School Language Arts</td>
<td>3 s.h.</td>
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<tr>
<td>7S:120: Methods: Social Studies</td>
<td>3 s.h.</td>
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<tr>
<td>7W:122 Choosing Instructional Strategies</td>
<td>3 s.h.</td>
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<tr>
<td>7H:112 Teaching of Adults</td>
<td>3 s.h.</td>
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<th>Science</th>
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<tr>
<td>This minor is designed to help individuals acquire a better understanding of the function of science in the modern world. Problems of pollution, energy shortages, depletion of natural resources, world-wide starvation, and many others are examined. Course requirements are as follows:</td>
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<tr>
<td>Any two of the following courses (for a total of 6 semester hours):</td>
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<tr>
<td>97:102 Societal and Educational Applications of Earth Science Concepts and Topics</td>
<td>3 s.h.</td>
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<tr>
<td>97:103 Societal and Educational Applications of Biological Concepts</td>
<td>3 s.h.</td>
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<tr>
<td>97:105 Societal and Educational Applications of Selected Concepts of Physics</td>
<td>3 s.h.</td>
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<th>Human Relations</th>
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<tr>
<td>This minor which emphasizes human relation education is designed to acquaint individuals with several basic techniques and concepts of questioning. It offers individuals an opportunity to acquaint themselves with alternative opportunities within the counseling profession. Course requirements are as follows:</td>
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<td>Each of the following:</td>
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<tr>
<td>7C:190 Small Group Possibilities</td>
<td>3 s.h.</td>
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<tr>
<td>7C:189 Counseling for Related Professions</td>
<td>3 s.h.</td>
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<tr>
<td>At least 12 semester hours from the following:</td>
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<tr>
<td>7C:105 Introduction to Personnel Counseling</td>
<td>3 s.h.</td>
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<tr>
<td>7C:110 Process of Change and the Counselor</td>
<td>3 s.h.</td>
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<tr>
<td>7C:112 Human Sexuality</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:116 Human Relations for Service Professions</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:123 The Culturally Different in Educational Settings</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:150 Psychological Aspects of Men's and Women's Roles</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>7C:155 Psychological Aspects of Black Behavior and Personality</td>
<td>3 s.h.</td>
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<tr>
<td>7C:160 Workshop in Counselor Education</td>
<td>3 s.h.</td>
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<tr>
<td>7C:185 The Drug Culture</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>7C:187 Management and Motivation in Organizations and Activites</td>
<td>3-6 s.h.</td>
</tr>
<tr>
<td>7C:183 Individual Instruction in Counselor Education: Undergraduate</td>
<td>3 s.h.</td>
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</table>
Master of Arts in Teaching

The M.A.T. program is a 26-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 certification as a secondary teacher in such fields as art, business, English, foreign languages, home economics, mathematics, science, and speech and drama. A grade-point average of at least 2.7 on undergraduate coursework is required for admission. At least 18 semester hours of graduate coursework in the student's proposed teaching field must be completed. A sufficient number of semester hours of graduate work in education (not less than 20) 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 preparing themselves professionally in such fields as coaching, administration, and supervision, and special education. Of the minimum of 60 semester hours required for the degree, 28 are prescribed in the area of specialization; the remaining credit may be earned in cognate fields, supervised experience, research, and elective courses. The research must culminate in a written report. Other requirements and regulations applicable to the Ed.D. are the same as for the master's degree, except that 16 semester hours of research work on campus are required in one 12-month period or in two summer sessions, and coursework completed ten years prior to the final examination must be evaluated to determine the amount of credit that may be accepted toward fulfillment of the program requirements.

Doctor of Philosophy

The Ph.D. is the highest academic degree and is conferred upon those students who have demonstrated superior scholarship and mastery of research skills in coursework 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 coursework rather than a degree program. This program provides for minimal admission and appropriate for persons seeking temporary credits, who are unqualified because of career plans, or whose applications are too late to permit processing for regular admission into degree programs. Faculty review committees may admit students to the program rather than as degree candidates due to incomplete information, unclear degree objectives and the like, in order to permit registration in the University.

Certification Only

Students who have not been certified as teachers and who do not wish to pursue the M.A.T. or do not meet its admission requirements may be admitted under the classification, "certification only." With students in this program, the advisor plans the academic major and educational sequence options of the program to meet the requirements for certification. Since enrollment is limited in early childhood education, elementary education, special education, and social studies and English in the secondary program, admission of graduate students to this program is as carefully reviewed as for degree programs. Persons who wish to meet certification requirements for positions other than as a teacher (i.e., counselor, administrator, or curriculum specialist) and who meet basic requirements and need only a few courses to validate or update their qualifications should apply for professional improvement status. Admission to a certification only program requires a minimum undergraduate grade-point average of 2.5.

Bulletin

Prospective graduate students should write to the College of Education for the 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 Center for Educational Experimentation, Development, and Evaluation develops proposals, conducts studies, publishes reports and monographs, and provides pre- and postdoctoral training. The program relates to instructional technology, materials, and synths design and development, research, demonstrations and dissemination of research, and curricular products. It works in collaboration with federal, state, and private agencies, colleges, and operating school districts to design and conduct cooperative research, development, and evaluative projects.

The Computer-Based Education Laboratory offers hardware and consulting support for computer applications and instructional development related to ongoing instruction at the College of Education.

The Curriculum Laboratory provides materials primarily for students and faculty members interested in curriculum problems. It brings into a convenient central location approximately 30,000 elementary and secondary textbooks, reference books, courses of study, syllabuses, pamphlets, and non-print media such as filmstrips, games, records, etc. The Laboratory also houses a 17,000-volume youth collection.

The Early Childhood Education Center provides practical, curriculum development, and research opportunities for undergraduate and graduate students preparing to work with preschool-aged children. The center enrolls some 81 children from two months to five years. Both full-day and half-day programs are provided.

The Educational Media 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 service to students and faculty of the College of Education for production of visual aids, filmstrips, super 8 film, thermals, transparencies and other materials related to Instructional development.

The Educational Placement Office serves undergraduate teacher education students interested in teaching positions, as well as graduate students seeking other certified school positions. Graduate students interested in college teaching positions or education or in other fields, as well as those interested in administration or positions in higher education, are also served by this office.

The Education Library is located in the Main Library. It provides books, periodicals, reference books, films, ERIC microfiche, tapes, and a reserved book room for students and faculty.

Instructional Activities for the Classroom Teacher is a cooperative program between The University of Iowa and the State Department of Public Instruction involving the whole state of Iowa. The purpose is to conduct an in-service program for all classroom teachers of the handicapped.

The Iowa Testing Program staff develops standardized educational tests such as the widely-used Iowa Tests of Basic Skills and Iowa Tests of Educational Development, for use in elementary and secondary schools. This department also conducts research studies in educational measurement and evaluation, publishes brochures, and sponsors lectures and symposia. It provides consulting services to school systems, and provides training experience for graduate students in measurement and statistics.

North Central Association (NCA) of Colleges and Schools is the largest and most active of eight regional accrediting associations in the United States. Iowa is one of 19 NCA-member states. The NCA's primary purpose is to foster improvement in education at the elementary, secondary, and collegiate levels by self-evaluation of educational programs, visits by evaluation teams, and adherence to policies and standards for continued membership. The University of Iowa is a member and supports the office of the chair of the Iowa NCA State Committee.

The Reading Clinic makes possible investigation into the fundamental causes of reading deficiencies and experimentation with methods of overcoming these deficiencies. It provides opportunities for observation and practice in the diagnosis and teaching of severely retarded readers.

The University Hospital and Health Center 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 and directed by the College of Education. Opportunities are available for student teaching and practical experience in school psychological services.

Statistical Laboratory contains a variety of calculating equipment. It provides experience in the application of such equipment to the analysis of statistical data, and it provides services for the analysis of research.

University Counseling Services are facilities available to students in counseling psychology, research, and counseling purposes.

University Hospital School of Medicine is a University-affiliated facility and, as such, it serves to provide a viable balance of direct services to developmentally disabled youngsters, interdisciplinary training activities for personnel, and research opportunities in program development and effectiveness.

The University Hospital Speech contains two unique, integrated service sections, a residential program for physically handicapped youngsters from throughout Iowa, and a day clinic for mentally retarded youth from surrounding school districts. Placement of children in the facility is worked out cooperatively with parents, appropriate area education agencies, and local school programs.

In addition to providing direct services to developmentally disabled young people, the University Hospital School has two other closely related functions—specialized training for workers and trainees in all areas concerned with handicapped children, and official research pertaining to causes and prevention of handicapping conditions.

The basic philosophy of the facility is to return children to their local community programs within the shortest possible time. This philosophy is reflected in the
maintenance or cooperative ties with local community programs either through outreach activities for training, pre-placement and follow-up purposes, or through conferences held at the facility.

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 in institutions accredited by the National Council for Accreditation of Teacher Education. The University of Iowa teacher education programs have been approved by the council. Students planning to major in special education are advised to be certain they will be eligible for certification if they plan to teach in a state other than Iowa.

Financial Aids

Persons interested in employment opportunities in any of the support units and special resources listed above should contact the director of each facility and indicate their interests, their academic and experience records, and their career or degree goals at The University of Iowa.

Graduate Assistantships

Individual academic programs provide opportunities for teaching, research, or service assistantships, as well as 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 or admission, his or her student file is available for review by those interested in selecting the assistantship(s) for the student’s program. Assistantships 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 Measurements Research Foundation provide substantial 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 only, are renewable for a limited number of times, and, at the present, provide stipends similar to those for other assistantships. Stipends are assigned to work under the direction of a faculty member in a research capacity, and must be enrolled for not less than 9 nor more than 12 semester hours per semester. All candidates must submit transcripts of all college work completed (undergraduate as well as graduate), 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, Lindquist Center, College of Education. The application deadline is February 1.

Loans and Outside Employment

Information about commercial and federal loans as well as part-time employment in the University and the community may be obtained from the Office of Student Financial Aid.

L. A. Van Dyke Student Loan Fund

This loan fund has been established by former advisees, colleagues, and other friends of Associate Dean Emeritus L. A. Van Dyke in recognition of his significant contribution to education in the state and the nation, and is available to degree candidates in secondary education with superior performance records as scholars and as teachers or administrators. For further information and application blanks, contact Professor J.E. McAdam, Division of Secondary Education, W-04 Rex Hall, The University of Iowa, Iowa City, Iowa 52242, or the University Office of Student Financial Aid.

College of Education Graduate Awards

Awards are presented to outstanding graduate students in the College of Education at the spring semester faculty meeting of the college. The awards include: Perry Eugene McClellan Award: To the outstanding candidate for an advanced degree in educational administration. Paul C. Packer Award: To the outstanding candidate for the master’s degree in education. Harvey H. Davis Award: To an outstanding student in educational administration or higher education, particularly in a field interested in the financing of education. Ph. Lambda Theta Graduate Award—M. A. and Ph.D. levels: To outstanding graduate students in high scholarship, promise in the professional areas of research, teaching or writing, and striking personal qualities.

Faculty

Nearly thirty percent of the members of the faculty with academic rank hold earned doctorates in their teaching fields, and 95 percent 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 doctoral training in teaching disciplines, as well as preparation in education, and hold academic rank both in their academic disciplines and in education.
Counselor Education

Chair: E. Pauline Dutzi


Professor emeritus: C. Cecil Orchestra

Assistant professor: Bethany O. Hogo

Graduate assistant: Nancy N. Cagle, Janey Castagnoli, Michelle Cowart, Susan Hauget, Philip Jones, Kathy Lageden, David M. Rosenfelt, Ethan Staley, Paul D. Stahl

Instructors: Eunice Lewis, Wayne McGovern, Olivia Townsend

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

The Division of Counselor Education is primarily involved in training of practitioners and scholars at the graduate level. This degree program in student development in postsecondary education, rehabilitation counseling, counseling and human development, counseling psychology, and substance abuse counseling. In addition, the division offers training in interviewing and interpersonal skills for students in other professional and graduate programs, as well as some basic courses in these areas for undergraduates.

Student Development in Postsecondary Education

Master of Arts

The M.A. program provides preparation for college positions in admissions, student activities, financial aids, student union, career planning and placement, residence halls, foreign student services, community college counseling, adult continuing education, external degree programs, and, with experience, as counselor teachers.

Admission requires completion of a master's degree in counseling, student 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, associate dean or dean of students, or as director of admissions, student activities, financial aids, student union, career planning and placement, residence halls, foreign student services, community college counseling service, adult continuing education and external degree programs.
The M.A. thesis or its equivalent is not necessary for admission to the Ph.D. program; but to take the Ph.D. comprehensive examination, the student must offer an M.A. thesis or equivalent as evidence of ability to do research. Students whose credentials for admission are not entirely satisfactory may be admitted conditionally. Students admitted on a conditional basis usually are required to earn a 3.5 grade-point average to be admitted to regular status.

Counseling Psychology

Doctor of Philosophy

The program provides preparation in general psychology and research methods in order to help students become counseling psychologists who are competent both in the provision of a wide range of human services and in conducting research on a wide variety of psychological problems. Graduates teach courses in counseling, conduct their own research and direct that of their students, supervise counseling trainees, and consult with other student services personnel. Graduates occasionally take service positions in community mental health agencies or in private practice.

Frequently, applicants for admission to the program will have an undergraduate major or minor in psychology, or a major in some related field; a grade-point average of 3.0 or higher; Graduate Record Examination (GRE) Aptitude Test score of 1,200; and three letters of recommendation. A personal interview may be required before final admission. All application materials must have been received by February 1 of each year; students will be notified about March 15 concerning their applications. Very few students (four to eight) are admitted to the doctoral program each year.

Rehabilitation Counseling

Master of Arts

The M.A. program provides preparation for work in state rehabilitation agencies, sheltered workshops, rehabilitation centers, 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, for fall admissions only.

Doctor of Philosophy

The Ph.D. program provides preparation for leadership in college and university rehabilitation counselor education and research programs in universities and state agencies.

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 for fall admissions.

Counseling and Human Development

Master of Arts

The M.A. program provides preparation for counseling in a variety of settings.

Admission requirements for the M.A. program are a 2.5 minimum undergraduate grade-point average and completion by the applicant and his or her references of forms supplied by the Office of Student Personnel, College of Education.

Educational Specialist

The purpose of the Ed.S. program is to enable counselor and counselor supervisors to increase their competence beyond the master’s level.

Admission requirements are a master’s degree or equivalent in counseling and experience as a counselor, a 3.0 minimum grade-point average on all graduate study, and the completion of forms supplied by the Office of Student Personnel, College of Education.

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 Graduate Record Examination (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 is substance abuse counseling to prepare individuals to function in a wide variety of community counseling settings. The emphasis is on individual, group, 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 practicum experiences is available in a large number of settings in neighboring community agencies, schools, and colleges, as well as in many agencies throughout the University.

Financial Aid

Depending on federal funding, graduate training fellowships may be available for students entering the rehabilitation counseling and drug counseling programs. Many other graduate assistantships 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 college student personnel program. Applicants for assistantships should contact the coordinator of the particular counselor...
M.A. in Educational Administration

The purpose of this program is to prepare individuals for appointments as elementary or secondary school principals, central staff, or paraprofessional positions in state departments of education or in positions with area education agencies. The student may take the program with the 30 semester hour minimum or without (32 semester hours minimum).

Course Requirements

With the aid of his or her advisor, the student prepares a plan of study including these general requirements:

TF: 117 Philosophy of Education 2-3 s.h.
TF: 121 Educational Psychology 3-4 s.h.
SD: 201 Foundations of School Administration 3 s.h.

The student must specialize in elementary, secondary, or central staff administration, by completing one of the programs outlined below. The candidate may choose eligibility approved by his or her advisor to satisfy degree requirements.

Elementary School Administration

PF: 180 Educational Measurement for the Classroom Teacher 3 s.h.
PD: 261 Elementary School Organization 3 s.h.
PE: 362 Elementary School Organization Patterns 3 s.h.
TE: 1001 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
TE: 204 Seminar: Elementary Supervision and Administration 2-3 s.h.
TE: 205 Supervision of Instruction 2-3 s.h.

Two of the following:

TE: 203 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
TE: 301 Analysis and Appraisal of Curriculum 2-3 s.h.
TE: 304 Analysis and Selection of Children's Literature to Develop Educational Environment 2-3 s.h.
TE: 280 Supervision of Elementary School Language Arts 3 s.h.
TE: 281 Supervision of Elementary School Social Studies 3 s.h.
TE: 302 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
TE: 283 Supervision of Elementary School Mathematics 2-3 s.h.
TE: 294 Building Foundations for Reading: Preprimary and Primary 2-3 s.h.
TE: 285 Supervision of Intermediate Grades Reading 3 s.h.
TE: 287 Supervision and Curriculum Development in the Kindergarten and Early Primary 2-3 s.h.
orTE: 288 Supervision and Curriculum Development in Pre-Kindergarten Care and Education 2-3 s.h.
TE: 288 Supervision of Student Teachers and Auxiliary Personnel 2-3 s.h.

Secondary School Administration

PD: 262 Computer Applications in Education 2-3 s.h.
PD: 280 Secondary School Organization 3 s.h.
JE: 168 Curriculum Foundations (same as 7D: 108) 2-3 s.h.

Secondary School Administration

7D: 290 Improving Instruction in the Secondary School 3 s.h.
7D: 375 Issues and Trends in School Guidance 2-3 s.h.
7D: 291 Secondary School Curriculum 2-3 s.h.
7P: 143 Introduction to Statistical Methods 3 s.h.

Central Staff Administration

7P: 143 Introduction to Statistical Methods 3 s.h.
7D: 203 Computer Applications in Education 2-3 s.h.
7D: 296 Financial Management of Local School Systems 3 s.h.

Thesis

A student electing the M.A. program with thesis must take 7D: 395 M.A. Thesis in Educational Administration and a final oral examination on the thesis.

Comprehensive Examinations

The student takes two three-hour examinations in areas of emphasis selected with the approval of his or her advisor.

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 principal, superintendents, and other administrative and supervisory positions in educational agencies. A student desiring certification plans a program approved by his or her advisor to meet state certification requirements.

Course Requirements

7P: 131 Educational Psychology 5-6 s.h.
7P: 117 Philosophy of Education 3 s.h.
7D: 201 Foundations of School Administration 3 s.h.
7D: 290 Improving Instruction in the Secondary School 3 s.h.
7D: 375 Issues and Trends in School Guidance 2-3 s.h.
7D: 291 Secondary School Curriculum 2-3 s.h.
7P: 143 Introduction to Statistical Methods 3 s.h.

Program Emphasis

Students must complete the balance of their minimum required hours (minus cognates and electives) with the following areas of emphasis. Courses specifically listed in each area of specialization are the required courses.

Elementary School Administration

7P: 150 Educational Measurement for the Classroom Teacher 2-3 s.h.
7D: 261 Elementary School Principal 3 s.h.
7D: 262 Elementary School Organization Patterns 3 s.h.
7E: 300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
7D: 303 Seminar: Administration and Coordination of Curriculum 2-3 s.h.
7D: 304 Seminar: Elementary Supervision and Administration 2-3 s.h.
7D: 381 Analysis and Appraisal of Curriculum 2-3 s.h.
7D: 383 Supervision of Instruction 2-3 s.h.

Secondary School Administration

7E: 186 Curriculum Foundations 2-3 s.h.
7P: 150 Educational Measurement for the Classroom Teacher 2-3 s.h.
7D: 203 Computer Applications in Education 2-3 s.h.
7D: 282 Secondary School Principal 3 s.h.
7D: 290 Improving Instruction in the Secondary School 3 s.h.
7D: 291 Secondary School Curriculum 2-3 s.h.
7C: 210 Issues and Trends in School Guidance 2-3 s.h.
7P: 143 Introduction to Statistical Methods 3 s.h.

General School Administration

7E: 300 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools 3 s.h.
7D: 291 Secondary School Curriculum 2-3 s.h.

7D: 203 Computer Applications in Education 2-3 s.h.
7D: 291 Administration of Professional Personnel 2-3 s.h.
7D: 206 Financial Management of Local School Systems 3 s.h.
7D: 208 Legal Aspects of School Personnel 2-3 s.h.
7D: 209 Legal Aspects of School Administration 2-3 s.h.
7P: 143 Introduction to Statistical Methods 3 s.h.

Cognates

The student must complete a minimum of 8 semester hours bearing a cognate relationship to educational administration, subject to the advisor’s approval.

Electives

The student chooses electives completing the 60-semester-hour requirement for the Ed.S. degree. In the program for general or central staff administration, the student may choose electives for specialization in such fields as staff personnel, business affairs, instruction, theory, legal aspects, curriculum, and information systems.

Research

All candidates for the Ed.D. degree must complete a formal research paper (4 semester hours) dealing with a specific problem in school administration or instruction.

Comprehensive Examination

The comprehensive examination for the Ed.D. degree comprises one three-hour examination in educational administration and one three-hour examination in a specialized area either in educational administration or in a related 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 determined to best equip the individual 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 specialization in 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, pupil aspects, theory, and school personnel. Students specializing in general or secondary administration must complete a 10-semester-hour cognate outline the College of Education. Proficiency is too tool research areas must be demonstrated.

Comprehensive Examinations

Each doctoral student must complete satisfactorily three three-hour examinations in areas approved by the student’s advisor and the dividing chair. One of these examinations will be based on the general field of educational administration. The other two examinations will be based on the student’s areas of specialization. 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 educational administration advisor 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
73:256 Educational Specialties in Educational Administration
Supervisor or the design, research, and writing of a research project of significant quality for upper-level classes which provides an individual instruction term. Prerequisite: consent of instructor.

73:262 P.R.O. Teaching in Educational Administration
Supervisor of the research, design, and writing of a thesis at the P.R.O. level provided an individual instruction term. Prerequisite: consent of supervisor.

Early Childhood and Elementary Education
Chair: Jerry K. Kahn
Faculty: graduate students in Early Childhood and Elementary Education.

Cheryl A. Purser
Beginning Secondary Education.

Linda L. Smith
Associate Professor of Education.

G. Philipp
Professor of Education.

Martha E. Weisz
Professor of Education.

Minor: Advance Certification.

Degree options: B.A., B.S., M.A., Ph.D.

The division's programs are designed to prepare graduates for employment in specific professional roles in public schools and institutions of higher learning. All of its programs have been approved by the Iowa Department of Public Instruction and meet National Council for Accreditation of Teacher Education approval standards.

Undergraduate Programs in Early Childhood Education

Students pursuing a major in early childhood education may elect to major for either the B.A. or the B.S. degrees. The B.A. degree requires four semesters of study or the equivalent in one foreign language. The B.S. degree requires two semesters of study or the equivalent in one foreign language. In addition to these requirements the B.A. and B.S. degrees are identical.

Preparation for early childhood teaching involves study of child development, parent-child relationships, and organization and administration of child care centers, in addition to curriculum and methodology appropriate for young children. The program involves wide reading, creative planning, and application of knowledge in working with groups of young children in public or private early childhood centers or classrooms. The early childhood education program is designed specifically to prepare students to teach children in an adequately staffed, in classes for three- and four-year-old children, and in kindergartens, and meets the requirements of the Iowa License endorsement for kindergarten teachers. Students interested in dual certification at the prekindergarten/kindergarten level and the kindergarten/elementary level should elect the elementary education major as described in a subsequent section and acquire early childhood education area of specialization. A student successfully completing this combination is eligible for Iowa teaching certificate endorsements 10 (K-0) and 53.

Students majoring in early childhood education must complete the science/mathematics foundation designed for them as a prerequisite to enrollment in 7E:162 Methods: Elementary School Science and 7E:163 Methods: Elementary School Mathematics. This prerequisite may be satisfied in one of three ways:

Satisfactory completion of 7H:55-58 Science Foundations I-I-ii and 7H:60 Theory of Arithmetic or
Satisfactory completion of equivalent course at other college or university.

Completion of eight semester hours of other science or social science courses which satisfy the College of Liberal Arts natural science core requirement, and the passing of specialized test administered by the University's Examination and

Examination Service following the content of 7H:55-56 and 7H:60.

Students not passing the science examination must register for 7H:104 Science Foundations I, or Students not passing the mathematics examination must register for 2H:30 Theory of Arithmetic.

Undergraduate students should complete these required foundation courses in their sophomore year.
Students seeking Iowa Department of Public Instruction approval to teach preschool handicapped children should refer to the "Special Education" section of the Catalog.

Copies of the requirements for each area of specialization are available in the College of Education office and at the Early Childhood and Elementary Education Division office. Courses in the area of specialization may be taken pass-fail if they are offered in the pass-fail option.

Student Teaching
Students should submit student teaching applications to the College of Education by March 1 in preceding the academic year during which they plan to do their student teaching. Students register for student teaching under 7E:158 Supervised Teaching in an Early Childhood Center. The student teaching period is one full semester for 15 semester hours of credit. This is considered a full load and a student must have special approval from the division chair to register for any additional coursework.

Undergraduate Programs in Elementary Education

Students pursuing a major in elementary education may elect to meet requirements for either the B.A. or the B.S. degree. The B.A. degree requires four semesters of B.S. degree equivalent in one foreign language. The B.S. degree requires two semesters of study or the equivalent in one foreign language. In all other respects the B.A. and B.S. degree requirements are identical.

Elementary teachers serve in a variety of school organizational patterns, including self-contained rooms wherein the teacher assumes responsibility for most of the curricular areas, departmental positions wherein their responsibilities are concentrated in one or two subject areas, and team-teaching assignments wherein two or more teachers assume shared responsibility for the total instructional endeavor.

Preparation for elementary teaching involves the acquisition of a broad general education background. In-depth study of at least one elementary curriculum subject area. And professional study of the learning process, of the instruction and structure of curricular materials suitable for school-age children, and of the methodological procedures most appropriate for presenting these materials. Study in the program is rigorous. It involves wide reading, creative planning, and application of knowledge in the classroom.

The program is designed specifically to prepare students to teach kindergarten through sixth grade. Special sequences are also available for students seeking the prekindergarten/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 science/mathematics core requirement is the same for this program as for the early childhood education program.

Undergraduates should complete these foundations requirements in the sophomore year:

7E:91 Pre-education Practicum 2 s.h.
or
7E:91 Pre-education Practicum 2 s.h.
and
7E:100 Introduction: Elementary and Early Childhood Teaching 3 s.h.

7P:75 Educational Psychology and Measurement 3 s.h.
7E:120 Methods and Materials: Music for the Classroom Teacher 3 s.h.
7E:122 Methods and Materials: Art for the Classroom Teacher 3 s.h.
7E:128 Literature and Writing for Children 3 s.h.
7E:157 Methods: Early Childhood Education I 3 s.h.
7E:159 Pre-education Practicum 1-2 s.h.
and
7E:159 Pre-education Practicum 1-2 s.h.
(to be taken concurrently with 7E:167)

These additional courses are required to complete the early childhood education major, but they may be taken before or after student teaching:

7E:114 Parent-Child Relationships 3 s.h.
7U:123 The Culturally Different in Educational Settings 3 s.h.
7E:165 Methods: Multicultural/Bilingual Education 3 s.h.
or
7E:165 Multicultural Concepts and Educational Systems 3 s.h.
7E:185 Multicultural Concepts and Educational Systems 3 s.h.

Students majoring in early childhood education must take a minimum of three courses (for 9 semester hours) in one of these areas of specialization: child and family services, the family, child growth and development, language development, and preschool handicapped.
Early Childhood and Elementary Education/EDUCATION

7E:182 Methods: Elementary School Science 2 s.h.
7E:183 Methods: Elementary School Mathematics 2 s.h.
7E:184 Methods: Elementary School Reading 3 s.h.

Areas of Specialization
An area of specialization is required in a teaching field. The areas of specialization offered are elementary art, the arts in early childhood and elementary education, bilingual education, early childhood, health education, elementary language arts, elementary mathematics, multicultural education, elementary music, elementary reading, elementary physical education, elementary sciences, elementary social science, special education, and elementary generalist.

The student should consult with 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 College of Education office and at 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.

Student Teaching
Regardless of the area of specialization selected, students must complete a minimum of 15 semester hours of credit in student teaching. Students should apply to the College of Education by March 15 preceding the academic year during which they plan to do their student teaching. No more than two assignments will be made in any one semester.

Most students in this program will register in 7E:191 Supervised Teaching in the Elementary School: Interactive Phase for 6 semester hours and 7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase for 7 semester hours. This is considered a full load, and a student must have special permission from the division chair to register for any additional coursework.

In certain areas of specialization, other registration patterns are required. The most common of these are:
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 4 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 4 s.h.
7E:195 Supervised Teaching in an Early Childhood Center 7 s.h.
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 7 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 6 s.h.
7E:192 Laboratory Practice in Elementary School 2 s.h.
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 4 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 4 s.h.
7E:191 Supervised Teaching with Physically Handicapped 7 s.h.
7E:191 Supervised Teaching in the Elementary School: Interactive Phase 4 s.h.
7E:193 Supervised Teaching in the Elementary School: Pre- and Post-Active Phase 4 s.h.
7E:192 Supervised Teaching with Mentally Retarded 7 s.h.

Students should consult with their advisers concerning the appropriate registration pattern.

Master of Arts in Elementary Education
This degree program, which may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum), is designed to prepare master's degree candidates in elementary education to 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. Only one course, 7E:200 Design and Organization of Curriculum for Early Childhood, Elementary, and Middle Schools, is specifically required of all candidates, but each candidate must elect at least one course in each of these areas: social foundations, educational psychology and measurement, and supervision. In addition, each candidate must complete an area of specialization and selected coursework in advanced methodology.

Graduate students who have not completed an undergraduate program in elementary education may be admitted as "certification only" candidates.

Master of Science in Elementary Science
This program is designed to prepare master's degree candidates in elementary science to serve as team or departmental science specialists. The program may be taken with thesis (30 semester hours minimum) or without (32 semester hours minimum).

Admission requirements are the same as those established by the Graduate College and, in addition, the applicant must have completed an undergraduate program of teacher preparation in elementary education.

Four courses are required of all candidates:
7E:492 Advanced Techniques of Teaching Science in the Elementary School 3 s.h.
7E:202 The Science Curriculum in the Elementary School 2-3 s.h.
7E:350 Seminar: Science Education 1 s.h.
7E:392 Current Readings in Science Education 2 s.h.

In addition, all candidates must complete a total of 16 to 20 semester hours of coursework in two sciences areas, including a minimum of 10 semester hours in the major science area. Candidates' advisers must approve courses they select in the two areas and all electives.
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 thesis (32 semester hours minimum). The following are required of all candidates:

7E:171 Reading Clinic: Teaching Techniques 2-3 s.h.
7E:172 Reading Clinic: Teaching Practice 2-3 s.h.
7E:254 Building Foundations for Reading: Pre-Primary and Primary 2-3 s.h.
7E:265 Supervision of Intermediate Grade Reading 3 s.h.
7E:294 Methods: High School Reading 2-3 s.h.
7E:304 Seminar: Elementary Reading 2-3 s.h.
7E:294 Seminar: Secondary Reading 2-3 s.h.

In addition, candidates must complete one or more courses each in the curriculum, supervision, and social foundations areas. The student selects the remaining elective hours with the advisor's approval.

Doctor of Philosophy in Elementary Education

The purpose of this program is to provide foundations for college and university teaching and research positions in elementary education and for research, curriculum, supervisory, or administrative positions in public school systems and governmental agencies.

The program requires a minimum of 30 semester hours, including hours earned for the dissertation. Each student prepares an individual plan of study in consultation with an advisor. The final plan must be approved by the advisor and the division chair.

As a general guideline, each student is expected to have had a strong background in all facets of elementary school education and a very strong area of specialization in at least one facet. Commonly selected specialization areas 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 related field of concentration. The external field may be a professional specialization, such as educational psychology and measurement, special education, or parental 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 assistantships involve teaching in a good elementary school, while other assistantships involve teaching in a good early childhood education center. Some involve the supervision of undergraduate majors enrolled in 7E:591 Pre-Elementary Practicum, while some involve the teaching of sections of undergraduate methods courses and the supervision of student teachers. Most assistantships are classified as non-teaching. This classification permits students to register for a maximum of 12 semester hours credit per semester. Holders of assistantships must register for a minimum of 6 semester hours credit per semester.

All assistantships are awarded on a competitive basis. To be considered for an assistantship, an applicant must have been admitted as a regular status to the Graduate College and must have been accepted in an advanced program by the College of Education. Inquiries concerning assistantships should be directed to the division chair.

Courses

7E:101 Growth and Motor Development 2 s.h.
7E:127 Theoretical Bases for Elementary Physical Education 2 s.h.
7E:128 Philosophical/Religious Foundations for Elementary Physical Education 2 s.h.
7E:129 Moral and Environmental Foundations of Elementary Physical Education 2 s.h.
7E:130 Research Methods in Elementary Physical Education 2 s.h.
7E:131 Axiological Bases of Physical Education 2 s.h.
7E:140 Developmental Teaching Procedures 2 s.h.
8E:101 Introduction to Elementary School Physical Education 2 s.h.
8E:121 Introduction to Elementary School Physical Education 2 s.h.
8E:131 Methods in Elementary School Physical Education 2 s.h.
8E:132 Methods in Elementary School Physical Education 2 s.h.
8E:140 Research in Elementary School Physical Education 2 s.h.
8E:150 Educational Psychology 2 s.h.
8E:161 Teaching Biology 2 s.h.
8E:162 Teaching Chemistry 2 s.h.
8E:163 Teaching Physics 2 s.h.
8E:164 Teaching Social Studies 2 s.h.
8E:165 Teaching English 2 s.h.
8E:166 Teaching Mathematics 2 s.h.
8E:167 Teaching Fine Arts 2 s.h.
8E:168 Teaching Music 2 s.h.
8E:169 Teaching Physical Education 2 s.h.
8E:170 Teaching Director's 2 s.h.
8E:180 Teaching Library, 2 s.h.
8E:201 Teaching Mathematics 2 s.h.
8E:210 Teaching Science 2 s.h.
8E:220 Teaching English 2 s.h.
8E:230 Teaching Social Studies 2 s.h.
8E:240 Teaching Physical Education 2 s.h.
8E:250 Teaching Music 2 s.h.
8E:260 Teaching Art 2 s.h.
8E:270 Teaching Language Arts 2 s.h.
8E:280 Teaching History 2 s.h.
8E:290 Teaching Geography 2 s.h.
8E:300 Teaching Computer Science 2 s.h.
8E:310 Teaching Physical Education 2 s.h.
8E:320 Teaching Science 2 s.h.
8E:330 Teaching English 2 s.h.
8E:340 Teaching Social Studies 2 s.h.
8E:350 Teaching Physical Education 2 s.h.
8E:360 Teaching Music 2 s.h.
8E:370 Teaching Art 2 s.h.
8E:380 Teaching Language Arts 2 s.h.
8E:390 Teaching History 2 s.h.
8E:400 Teaching Geography 2 s.h.
Minor
The purpose of the minor is to provide an enriched background in educational psychology, educational testing, and research methods in education. A division adviser selected by the student will aid in choosing courses totaling 18 or more semester hours, of which 12 semester hours must be in 100-level courses. This minor does not lead to certification as a public school teacher.

Master of Arts in Educational Psychology
This program provides an overview of educational psychology as an area of scholarly inquiry. It includes coursework in human development, principles of learning and teaching, educational measurement, and research methods. The program does not prepare the student for entry into a specific vocation. Rather, it contributes to a broad understanding of the psychological principles on which education builds. Students may take this degree with or without thesis. The degree without thesis requires a minimum of 32 semester hours of coursework. The degree with thesis requires a minimum of 28 semester hours of coursework plus 2 to 4 semester hours of thesis credit. Both programs require 7P:143 Introduction to Statistical Methods or the equivalent.

Students plan the remainder of the program in consultation with their advisers, choosing courses from the following four areas: teaching and learning, developmental processes, measurement and research, and social foundations of education. Students must take at least one course in each of these areas and a concentration (three courses) in at least two areas. The faculty encourages degree candidates to enroll in at least two courses outside the division. Courses in elementary or secondary curriculum, supervision, special education, counseling, and psychology are commonly used to meet this requirement.

The program culminates in six hours of comprehensive examinations over the student's areas of concentration. The adviser develops the plan for these examinations in consultation with the student and the other members of the student's committee.

The admission requirements are the same as those established by the Graduate College. Teaching experience is desirable but not required. The faculty reviews applications as they are received.

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. Such positions occur in research centers, testing organizations, large school systems, and state educational agencies. The program is also appropriate for students who seek to broaden their knowledge of measurement and research methodology for personal development.

The degree may be taken without thesis (30 semester hours minimum) or with thesis (minimum of 28 semester hours of coursework plus 2 to 4 semester hours of thesis credit). All students must complete a core of courses totaling 18 to 20 semester hours. Included in this core are a graduate-level survey course in educational psychology, an elementary and intermediate course in classical statistical methods, an introduction to the use of statistical methods, and a course in educational research methodology, and courses in the development and use of evaluation instruments. The elective credits, totaling 10 to 12 semester hours, must include at least one course in elementary, secondary, or post-secondary education. The remaining electives may be chosen from the fields of psychology and educational psychology, statistical methods, educational measurement, computer programming and data processing, mathematics, mathematical statistics, and counseling.

The final comprehensive examinations typically include three-hour examinations in educational measurement and in applied statistics (classical or Bayesian). With the approval of the M.A. committee, the student may take two-hour examinations in these fields plus a two-hour examination in educational psychology or a substitute area. Three-hour examinations require a minimum of three courses in the area; two-hour examinations require a minimum of two courses in the area.

Grades-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 accepted. However, if there is convincing evidence of superior ability, the faculty may approve acceptance on a conditional basis. Applicants should have at least one course in college mathematics. Some work experience as a teacher or researcher is highly desirable. The faculty reviews applications as they are received.

Master of Arts in Reading Disability
This program provides training in the 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 thesis 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:
7P:170 Introduction to Psychology of Reading 3 s.h.
7P:173 Survey of Diagnostic/Prescriptive Approaches to Reading Instruction in Grades K-12 4 s.h.
Doctor of Philosophy in Educational Psychology

This doctoral program prepares graduates for a variety of careers that share a concern for the application of psychological principles to educational practices. Such careers include professionals in educational agencies, clinics, hospitals, universities, and the public schools. A concentration in the area of reading disabilities prepares students for careers as reading consultants, directors of reading clinics, and professors who train diagnostic and prescriptive reading specialists.

In addition, students take considerable coursework in measurement, statistical analysis, and research methodology.

All students must complete the following minimum course requirements or approved equivalents in the first 24 semester hours following admission to the program:

- TP:142 Introduction to Statistical Methods
- TP:243 Intermediate Statistical Methods
- TP:270 Advanced Psychology of Reading
- TP:273 Reading Clinic: Diagnostic Practice
- 103:100 introduction to Linguistics

All students must meet the following minimum course requirements for approved equivalents in the first 24 semester hours following admission to the program:

- TP:142 Introduction to Statistical Methods
- TP:243 Intermediate Statistical Methods
- TP:280 Educational Research Methodology

Students must take three courses from the following two groups, with at least one course from each group.

Group A
- TP:105 Learner Characteristics
- TP:106 Child Development
- TP:108 Personality and Mental Health

Group B
- TP:131 Educational Psychology
- TP:181 Introduction to Theories of Learning
- TP:231 Adult Teaching and Learning

TP:281 Advanced Theories of Learning
TP:282 Cognitive Processes in Classroom Learning
TP:285 Motivation in Education

Before writing the Ph.D. comprehensive examinations, the candidate must meet two additional requirements. The first of these is one 200-level course in educational or psychological measurement or TP:246 Design of Experiments or one course in philosophy of science. The second applies to candidates who took the M.A. degree without thesis. Such candidates must undertake a project in lieu of the thesis. This project must be approved by three members of the educational psychology faculty.

The balance of the candidate’s program is planned jointly by the student and the advisor. Each candidate must register for a minimum of 10 semester hours credit in Ph.D. thesis.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division faculty considers course grades, evidence of critical and analytical skills, development during the previous year, and promise for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied are dropped from the program.

After candidates have completed the major portion of their coursework, they may write comprehensive examinations. Typically, these examinations consist of a total of nine hours of written examinations in two or more areas. One of these areas must be chosen from the following: general educational
Doctor of Philosophy in Educational Measurement and/or Statistics

The purpose of this program is to prepare students for professional positions in the fields of educational measurement, program evaluation, and statistical methods. Such positions generally occur in colleges and universities, state departments of education, large public and private school systems, testing agencies, and research centers.

Every student must complete the following core courses or their equivalents:

- TP-131 Educational Psychology 3 s.h.
- TP-243 Intermediate Statistical Methods 4 s.h.
- TP-148 Bayesian Statistics I 3 s.h.
- TP-255 Construction and Use of Evaluation Instruments 3 s.h.
- TP-267 Educational Measurement and Evaluation 3 s.h.
- TP-244 Correlation Methods 3 s.h.
- TP-246 Design of Experiments 3 s.h.
- TP-260 Educational Research Methodology 3 s.h.

The student’s advisor will suggest additional coursework 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 intent 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.

Qualifiers who enter the program without completing an M.A. degree must complete a preliminary project approved by their respective division faculty. The project must be completed before the writing of the Ph.D. comprehensive examinations. A minimum of 30 semester hours is required for the degree, including 12 to 16 semester hours of thesis credit.

The record of every student admitted to the program is reviewed near the end of the second semester of residence. The division faculty will consider course grades, evidence of critical and analytical skills, development during the previous year, and promises for continued growth. Students who show insufficient potential or deficiencies that cannot be remedied will be dropped from the program.

Following completion of the major portion of their coursework, 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 on an approved subspecialty area. A subspecialty area will generally be one in which the candidate has at least 8 semester hours of coursework. In lieu of one written examination, the student’s committee may assign a project involving analytical, evaluative skills, or research creativity. The written examinations are followed by an oral examination in which the committee members seek further evidence of the candidate’s command of the three fields. A single decision is rendered on all aspects of the comprehensive examinations.

Applicants for admission to the program must hold an M.A. degree from an accredited institution. The grade-point-average requirement is the same as that required by the Graduate College. An applicant’s scores on the verbal and quantitative sections of the Graduate Record Examination (GRE) Aptitude Test total less than 1000, and there is no qualifying 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, research, or a related field is highly desirable. The faculty reviews 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, as directors of reading programs, or as supervisors of remedial reading programs in larger school systems. The course requirements are essentially the same as those for the doctoral program in educational psychology. The elective courses, however, will include those pertinent to the area of reading and relevant courses offered by the divisions of Special Education, 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 those for the Ph.D. program in educational psychology.
Financial Aids

The division normally employs two graduate students as teaching assistants in educational psychology and two in educational statistics. These are half-time academic year appointments and holders are permitted to carry a study and/or research load of up to 12 semester hours per semester. These positions are generally awarded to experienced doctoral students in either educational psychology or educational measurement and statistics. Possible candidates may address inquiries to the chair of the division.

Other types of graduate assistantships are supported by the Iowa Tests of Basic Skills and the Iowa Tests of Educational Development. Duties are varied, including such responsibilities as test development, test scoring, and consulting with teachers in the field whose pupils have participated in these testing programs. There are also a few other assistantships supported by the Iowa Testing Programs which are not specific to the three programs cited above. Inquiries should be directed to the program directors.

Courses

79-10 Educational Psychology and Measurement 3.0 h.

Current trends in educational research; their relationship to practice; evaluation of educational programs; and measurement, evaluation, and evaluation of educational programs. Same as SS 311. 3.0 h.

79-112 Secondary Characteristics 3.0 h.

Overview of individual differences found to have direct implications for teaching.

79-113 School Psychology 3.0 h.

Principles of education psychology; current research and training; and evaluation of psychological programs and services. Same as SS 311. 3.0 h.

79-127 Psychological Basis of Instructional Design 3.0 h.

Examination of the psychological knowledge base that underlies sound instructional design. 3.0 h.

79-128 Personality and Behavioral Issues 3.0 h.

Overview of theories and research on personality development and change. 3.0 h.

79-129 Sociocultural Change in the School Age Child 3.0 h.

Social development, group processes, peer relations, and behavioral development in the context of society and culture. 3.0 h.

79-131 Understanding and Cultivating Human Behavior 3.0 h.

Introduction to the psychological and sociocultural factors that influence motivation, personality, and moral development. 3.0 h.

79-132 Grouping for Social Development of Children 3.0 h.

Factors influencing social behavior of children; the role of social factors in individual development; evaluation of group processes; and impact of group processes on individual and group development. 3.0 h.

79-133 Individualizing the Intellectual Growth of Children 3.0 h.

Ensuring appropriate learning environments for children of all ages and abilities. 3.0 h.

79-134 Educational Psychology 3.0 h.

Psychology in teaching and learning; development of metacognitive skills; and the use of technology in the classroom. 3.0 h.

79-135 Teaching and Learning: Theories, Strategies, and Research 3.0 h.

Introduction to educational psychology as it relates to teaching and learning, and the role of research in educational practice. 3.0 h.

79-136 Advanced Child Development 3.0 h.

Examination of the psychological and social development of children. 3.0 h.

79-138 Special Readings and Projects 3.0 h.

Advanced topics in educational psychology. 3.0 h.

79-140 Individual Differences and Effective Instruction 3.0 h.

The role of individual differences in educational psychology. 3.0 h.

79-141 Professional Development: Adolescent and Adult 3.0 h.

Analysis of the role of and research on the professional development of educators. 3.0 h.

79-143 Test-Acting and Learning 3.0 h.

Research on the effects of test anxiety on learning and performance. 3.0 h.

79-144 Research Methods in Educational Psychology 3.0 h.

Introduction to research methodology in educational psychology. 3.0 h.

79-145 Behavioral Statistics I 3.0 h.

Analysis of data and statistical methods in psychology. 3.0 h.

79-146 Behavioral Statistics II 2.0 h.

Advanced topics in behavioral statistics. 2.0 h.

79-147 Theories of Learning and Instruction 3.0 h.

Current theories of learning and their implications for instructional design. 3.0 h.

79-148 Theories of Learning and Instruction 2.0 h.

Advanced topics in learning and instruction. 2.0 h.

79-149 Educational Measurement and Evaluation 3.0 h.

The role of educational measurement and evaluation in the teaching-learning process. 3.0 h.

79-150 Educational Measurement and Evaluation 2.0 h.

Advanced topics in educational measurement and evaluation. 2.0 h.

79-151 Introduction to Research Methods in Educational Psychology 3.0 h.

Introduction to research methods in educational psychology. 3.0 h.

79-152 Introduction to Research Methods in Educational Psychology 2.0 h.

Advanced topics in research methods in educational psychology. 2.0 h.

79-153 Introduction to Theories of Learning 3.0 h.

Overview of theories in educational psychology and their implications for educational practice. 3.0 h.

79-154 Cognitive Development in Children: An Introduction to Theory 3.0 h.

An introduction to the cognitive development of children. 3.0 h.

79-155 Advanced Individual Differences and Effective Instruction 3.0 h.

Advanced topics in individual differences and effective instruction. 3.0 h.
Bachelor of Science in Health Occupations

The health occupations education major has been designed to prepare teachers for employment at the community college level in preparatory health occupations education programs. In addition to basic skill and core requirements in the College of Liberal Arts, students will complete courses in professional education and additional coursework in the health occupations education specialty field(s) and/or supporting areas.

Students making application to this program must currently hold 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 acquire a baccalaureate degree. Applicants to this program must satisfy criteria for admission to the Teacher Education Program (T.E.P.) of the College of Education.

Program requirements:
Coursework in Professional Education
7P:131 Educational Psychology 3-4 s.h.
7P:140 Educational Measurement for the Classroom Teacher 2-3 s.h.
Appropriate coursework in social foundations
Curriculum and Teaching Procedures
One course from each group:
7H:120 Introduction to Instructional Design and Technology 3 s.h.
7H:125 Designing and Developing Instructional Materials 3 s.h.
7H:127 Choosing Instructional Strategies 3 s.h.
or
7H:122 Teaching of Adults 3 s.h.

Additional Requirements
7H:191 Community College Teaching Internship 8 or 12 s.h.
7H:190 Seminar Health Occupations Education 3 s.h.
Additional specialty coursework in health occupations education
Students may avail themselves of special workshops or courses offered by specific health colleges when appropriate prerequisites have been met.
Coursework may also be taken in specific basic sciences supporting health occupations education.
In addition to coursework in the health specialty and basic sciences, students may also choose electives from the College of Education or other supporting units.
Coursework in the health occupations education specialty and supporting fields should be carefully planned in consultation with the advisor.

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 colleges, and is appropriate for positions such as assistant dean, business manager, development officer, assistant to the president, dean, or assistant director, and division or program chair.
Applicants for admission must satisfy the requirements of the Graduate College. Candidates are selected on the basis of grade-point average, Graduate Record Examination (GRE) Graduate Record Equivalency, Graduate Record Examination (GRE) General Test scores, and promise for professional growth. Transcripts, the GRE scores, and three letters of recommendation are required for consideration for regular admission. An interview is recommended.
Specialist in Education

The Ed.S. program in postsecondary education provides preparation for undergraduate-level teaching in two- and four-year colleges, and for administrative higher education who are not planning to continue for a doctorate.

The Ed.S. degree may be awarded upon completion of a joint program totaling at least 90 semester hours of graded work in higher education and an academic field, or upon completion of a higher education sequence following a master's degree program. In either case, the candidate must fulfill these degree requirements:

Completion of 18 semester hours, including a structured internship, in professional education and related fields appropriate for college teaching or administration;

Completion of a minimum of 28 semester hours in the candidate's area of specialization (teaching field or administration);

Completion of 10 semester hours of electives approved by the candidate's advisor;

Completion of a 4-semester-hour research project in 7H385 Educational Specialist Research in Higher Education; and

Comprehensive examinations.

Course requirements for the college teaching track are as follows:

7H271 The Community College 2-3 s.h.
7H230 Intern Seminar 3 s.h.
7H330 College Teaching Internship 9 s.h.
7H175 Post-High School Staff Development Workshop 1-2 s.h.
7W51 Audiovisual Equipment for Instruction 1 s.h.
7P131 Educational Psychology 3 s.h.
7X170 Human Relations for the Classroom Teacher 1-3 s.h.
An approved American history or government course 2 s.h.

Course requirements for the administration track are determined by the student in consultation with his or her advisor.

The comprehensive examinations include a three-hour written examination on the candidate's area of concentration (college teaching or administration), a three-hour written examination covering the candidate's area of specialization within the area of concentration; and an oral examination covering both the area of concentration and the area of specialization.

Students majoring in higher education with a college teaching concentration may write a second examination in their teaching field, is less of the examination on the area of specialization.

Students majoring in another field and desiring to complete a teaching field in higher education should consult with an advisor in higher education early in their studies. In consultation with the student, the advisor will develop a plan of study individually for the 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.

Admission

Applicants for admission to the Ed.S. program in higher education must satisfy the general requirements for admission to the Graduate College. Candidates are required to show the following minimum grade-point average, Graduated Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended.

Doctor of Philosophy

The Ph.D program continues to attract persons who are likely to serve as top-level administrators, specialists, researchers, or teachers in postsecondary institutions or related public or private agencies.

The program offers four areas of concentration: general administration, curriculum and instruction, academic administration, community college, and continuing education (adult education). The program requires a minimum of 90 semester hours beyond the bachelor's degree.

The candidate chooses one area of concentration and must earn 16 to 24 semester hours of credit in that area. Ordinarily the candidate chooses a minor (12 to 30 semester hours) that complements the area of concentration. The dissertation research (10 to 15 semester hours) is expected to deal with a specific problem in the area of concentration. These three components—concentration, minor, and dissertation research—comprise a major part of the typical doctoral program, and give the student the opportunity to specialize.

While the doctoral program places heavy emphasis on administration at both the theoretical and applied levels, the student is expected to take coursework outside the division, using the flexibility of the program to develop expertise in basic and applied research in such areas as institutional analysis, teaching-learning theory, and curriculum and the nature of knowledge.

Comprehensive examinations for the doctorate cover the general areas of higher education and the candidate's area of the Ph.D. concentration, minor, and dissertation.

Applicants for admission to the doctoral program must satisfy the requirements of the Graduate College. Candidates will be required to show the following minimum grade-point average, Graduate Record Examination (GRE) Aptitude Test scores, and promise for professional growth. Transcripts, the GRE Aptitude Test scores, and three letters of recommendation are required for regular admission. An interview is recommended.
Iowa Community College Certification

To qualify for a professional certificate with authorization to teach in an arts and sciences field of an area community college in Iowa, the student must hold a master’s degree granted by an approved institution, with specialization in a field of instruction offered in the arts and sciences division of an area college. Preparation must include 8 semester hours of professional preparation appropriate for college teaching. Two semester hours of American history or government are required for certification in Iowa.

As of August, 1980, applicants for certification must have completed an approved human relations course for 1 to 3 semester hours of credit. The following courses fulfill this requirement (specific alternatives may be chosen in consultation with the Office of Community College Affairs):

- PH 271 The Community College 2-3 hrs.
- PH 290 Interim Seminar 2-3 hrs.
- PH 330 College Teaching Internship 2-5 hrs.
- PH 112 Teaching of Adults 3 hrs.

A master’s degree in the student’s teaching area is required for certification in arts and sciences areas.

Special Facilities

A resources and document collection relating to community colleges is available for students doing research or seeking employment information.

Courses

7801 Individual Study: Higher Education 1 hr.
Prerequisite consent of instructor.

7925 Problems and Roles in Higher Education 2 hrs.
Study and analysis of current selected issues, problems, and trends in higher education. Required of master’s level majors; open to nonmajors and undergraduates.

7910 Introduction to Continuing Education 2 hrs.
Prerequisite and essay of adult education movement in United States.

7919 Teaching of Adults 1 hr.
Adult learning lecture and consideration of hands-on readiness sessions in teaching techniques for adults.

79173 Pursuit High School Grad Development Workshop 5-6 hrs.
Designed to provide post-high school instructional workshops for in-service teachers and transitional educators (school-based professional education, workshop topics may include preparation for certification and supportive personnel as well as faculty members in post-high school institutions.

79180 Student Health Occupations Education 3 hrs.
Analysis of career development as it relates to instruction in health occupations education and trends in providing health care services; such services include knowledge and understanding of health occupations education programs.

79181 Community College Teaching Seminar 2 hrs.
Full academic term of supervised on-site teaching experience in a college setting to students enrolled in a program or assignment to gain knowledge of institution policies and procedures. Attention also given to the role of professional associations.

79217 Philosophy of Higher Education 1-3 hrs.
Small groups; higher education program with special emphasis on curriculum development, such experience, job analysis, and changing vocational needs of business and society. Required for teacher coordinator of office education. Same as GS 1017.

79199 Topics in Higher Education 2 hrs.
Students and faculty invited to submit topics for consideration. May be repeated.

79211 Problems in College Teaching 2-5 hrs.
Principles of course planning, teaching techniques, evaluation techniques, and assessment of instructional objectives and outcomes.

79230 History and Philosophy of American Higher Education 3 hrs.
Includes identification of major themes and developments in American higher education and development across time periods in which have particularly influenced those developments. Same as GS 203.

79232 Educational Policies and Programs in America 1-3 hrs.
Issues of federal, state, and institutional policy; the types of instruction; institutional mission and policy questions regarding the development and management of educational programs.

79234 Organizational Analysis of American Higher Education 2 hrs.
Theories and concepts of organizational behavior related to the structure, operations, and administration of American higher education. Prerequisite consent of instructor.

79236 Higher Education Management 3 hrs.
Concerned on the variables which influence the decision-making process in American higher education. Includes basic concepts, management models, planning, organizational structure. Prerequisite consent of instructor.

79239 Teaching in Higher Education 3 hrs.
Preparation to assume faculty or administrative role in community college setting. Prerequisite consent of instructor. This course prepares the prospective high school teacher preparation program or prepares to exist in community college transcritical, session during which the student becomes aware of the background in low level community college teaching.

79240 College Teaching Seminar 2 hrs.
Full semester of supervised off-campus teaching at the college level, which contributes directly to the student's major level in a transfer institution; must consult with instructor.

79250 Administration of Technical-Educational Programs 1 hr.
Understanding of the Iowa registry material in the American Community School setting. Prerequisite consent in community college setting. This course prepares the prospective high school teacher preparation program or prepares to exist in community college transcritical, session during which the student becomes aware of the background in low level community college teaching.

79255 Administration of Continuing Education 1 hr.
Thematic support in developing and maintaining programs and programs, the characteristics of the institution's placement in the community and community needs of cooperatively planned programs. Topics include assessing educational needs, instructional resources and costing, support services, budgeting, and evaluation.

79260 Problems and Issues in Continuing Education 2 hrs.
Prerequisite consent of instructor.

79265 Survey of Problems in Administration, Organization, and Administration 3 hrs.
Survey of problems in organization, administration, and administration.

79270 Iowa Community College Workshop 3 hrs.
Prerequisite consent of instructor.

79272 Individual Instruction in Higher Education 3 hrs.
Prerequisite consent of instructor.

79273 Master's Research in Higher Education 3 hrs.
Fulfill the research requirement in this certificate program; topic to be approved by the advisor.

79274 Research Seminar 3 hrs.
Analysis of selected research in the field, with special emphasis on the development of critical thinking and research skills, preparation and presentation of a major research project.

79275 Problems in Educational Research 3 hrs.
Characteristics of the professor and their educational implications, the role of theory and practice, clinical experience, each student experiences educational for a selected professor. Prerequisite consent of instructor.

79276 Seminar in Educational Research 3 hrs.
Prerequisite consent of instructor.

79277 Seminar in Higher Education 3 hrs.
Potential developmental changes in the educational program; change strategies. Prerequisite consent of instructor.

79278 Seminar in Community College Education 3 hrs.
Prerequisite consent of instructor.

79279 Theory and Practice of Planning in Higher Education 3 hrs.
Planning processes and applications in higher education at the institutional, state, and regional levels. Analysis and appraisal of exemplary national and agency plans.

79280 Administrative Decision-Making in Higher Education 3 hrs.
Analysis of administrative problems in higher education. Prerequisite consent of instructor. Prerequisite consent of instructor.

79281 The Law and Higher Education 3 hrs.
Legal aspects of problems in higher education; case studies, with particular emphasis on the effect the legal system has on the administration of higher education.

79282 Research in Higher Education 3 hrs.
Prerequisite consent of instructor. Prerequisite consent of instructor.

79283 Community College Development 3 hrs.
Prerequisite consent of instructor.

79284 Community College Development 3 hrs.
Prerequisite consent of instructor.

79285 Community College Development 3 hrs.
Prerequisite consent of instructor.

79286 Community College Development 3 hrs.
Prerequisite consent of instructor.

79287 Community College Development 3 hrs.
Prerequisite consent of instructor.

79288 Community College Development 3 hrs.
Prerequisite consent of instructor.

79289 Community College Development 3 hrs.
Prerequisite consent of instructor.

79290 Community College Development 3 hrs.
Prerequisite consent of instructor.

79291 Community College Development 3 hrs.
Prerequisite consent of instructor.

79292 Community College Development 3 hrs.
Prerequisite consent of instructor.
Secondary Education

Chair: John E. McIntyre
professors emeriti Gertrude J. Lyman, Hugh P. Sandour, Laura A. Van Dyke
assistant professors emeriti Lester G. Kueh, Lousa L. Newsome
associate professor Jack L. Swain, John M. Butler, Richard C. Levy, Douglas W. Thayer, Martha Teedens assistant professor, emeritus Wm. Morris Mathis
Instructor Blythe

The division provides teacher preparation programs in all secondary school subjects in which the University offers academic programs.

Persons who guide and facilitate the learning experiences of all secondary school students must have an understanding and appreciation of adolescent sources background in the liberal arts, an open attitude toward contemporary society and its problems, and enthusiasm for the subject taught.

Junior and senior high school teachers usually specialize in a particular subject, although they often teach classes both in their major field and in related fields. In addition to guiding the learning experiences of students in the classroom, secondary teachers plan and develop teaching materials, construct and correct tests, keep records and prepare reports, consult with parents, and perform other administrative and supervisory duties.

They are also involved in directing and supervising student activities, including clubs and social events, and they participate in out-of-school affairs as interested members of the community in which they teach. Developing and maintaining effective relations with parents and the local community is an important facet of the teacher's responsibility.

Teacher Certification

Students preparing for secondary school teaching must fulfill the general requirements for a bachelor's degree in the College of Liberal Arts or in the College of Business Administration, must fulfill the requirements for a major in a specific department or division in the College of Liberal Arts or College of Business Administration, and must complete the professional courses necessary for Iowa teacher certification.

Students preparing to teach art, music, or physical education typically take methods courses and acquire student-teaching experience at both the secondary and elementary levels. Undergraduate candidates for certification to teach in a secondary school should complete their foundations courses in the sophomore or junior year.

75:81 Pre-education Practice 2 s h. 75:100 Introduction: Secondary School Teaching 3 s h. 75:75 Educational Psychology and Measurement 3 s h.

With their advisor's approval, graduate students may elect equivalent graduate courses to satisfy the foundations requirement.

Students must complete the methods course in their major teaching field prior to the semester in which they do student teaching. They should apply for student teaching by March 15 preceding their senior year. The student teaching period is one full semester for 12 semester hours of credit.

Students should elect sufficient work in a field outside the area of their major to be recommended by the University for teaching in a second field.

Copies of the teaching major and minor requirements are available in the main office of the College of Education and in the central office of the Division of Secondary Education.

Graduate Program

The Division of Secondary Education offers these advanced degree programs:

Secondary School Curriculum: M.A., Ph.D.

Art Education: M.A., M.A.T., Ph.D.

Business Education: M.A., M.A.T., Ph.D.

English Education: M.A., M.A.T., Ph.D.

Mathematics Education: M.A., Ph.D.

Music Education: M.A., M.A.T., Ph.D.

Physical Education: M.A., Ph.D.

Science Education: M.A., M.A.T., M.S., Ed.S., Ph.D.

Social Studies Education: M.A., Ph.D.

Speech Education: M.A.

The Department of Business Education will be terminated effective May, 1981. No new applicants to the Business Education programs are being accepted.

Minimum grade-point average for admission is 3.0.

The M.A.T. programs are intended for students with superior academic records who did not complete work for teacher certification at the undergraduate level.

Programs leading to the M.A. or M.S. and Ed.D. degrees usually combine advanced work in the academic disciplines and professional education, and are designed for the preparation of master teachers, department heads, supervisors, curriculum consultants, directors, and coordinators for secondary schools and community colleges.

More extensive interdisciplinary programs leading to the Ph.D. degree also prepare individuals to serve as college or university instructors in their respective fields of specialization in colleges of education or in the academic department of their major field. Some of the interdisciplinary programs are administered jointly by the College of Education and other academic units of the University.
27342 Administering and Supervising P-12 Science Programs 3 sh.

27352 Principles, practices, responsibilities, and techniques of administration of science programs. Emphasis on the management of schools, school districts, and science programs. Prerequisite: Consent of instructor. Offered every spring semester and summer session. Same as 47-13.

27353 Structure of Science and its Application in Teaching 3 sh.

Intermediate topics in philosophy and psychology of science education, current issues and challenges in science education. Prerequisite: Consent of instructor. Offered fall semester.

27354 Dynamics of Science and the Role in Teaching 3 sh.

Adapts to extend historical and sociological understandings of the nature of science and its applications in teaching to understanding the role of science in the modern world. Emphasis on role of the science teacher in society and science education. Prerequisite: Consent of instructor. Offered fall semester.

27356 Developing Curricula for Science Instruction 3 sh.

Theory and techniques for designing printed and laboratory materials for science programs. Offered fall semester.

27357 Curriculum Development in the Social Studies 3 sh.

Current status of the social studies curriculum, trends in educational philosophy, attitudes toward social studies instructional goals and curriculum design and development. Offered spring semester of odd years.

27358 Current Trends, Approaches and Materials in Social Studies Teaching 3 sh.

Examines the role of the art and science of social studies teaching and curriculum based on current literature. Emphasizes inquiry of historical development.

27359 Advanced Techniques of Teaching in Social Studies 2-3 sh.

Current literature to examine variables affecting attention, motivation, achievement, and attitudes of the social studies classroom. Patterns of processes; evaluation of current trends; instructional techniques; methods of improving teaching effectiveness. Offered fall or spring.

27372 Seminar: Social Studies Education 3 sh.

Seeks to familiarize and orient candidates in the social studies education minor in the philosophy, practices, curricular development, and teaching methods in the social studies field. Offered fall semester. Same as 47-13.

27391 Junior High School and Middle School 3 sh.

Survey of practice in junior high school and middle school education; emphasis on various subject areas, current trends in curriculum planning. Offered fall semester. Same as 47-91.

27403 Secondary School Curriculum 3 sh.

Survey of practice in secondary school curriculum, analysis of components of curriculum, state and national education of practices and issues in various subject areas. Offered fall semester. Same as 47-13.

27413 Special Topics in Secondary Education 2-3 sh.

Prerequisite: Consent of instructor.

27424 Seminar: Secondary Social Studies 3 sh.

Analysis and evaluation of classroom research in secondary social studies. Emphasizes research and comparative procedures. Prerequisite: 27391 and consent of instructor.

27431 Reading Clinic: Teaching Practice—Secondary Level 2 sh.

Provides experiences in the diagnosis, remediation, teaching of secondary students with reading difficulties ranging from mild to severe. Emphasizes methods involving cooperative instruction between classroom teacher and participating in an interdisciplinary team approach to provide diagnostic services for students. Prerequisite: 27391.

27505 Youthful in Secondary Education: Practice in Supervision and Evaluation of Personnel 3 sh.

Actual and potential school administrators in developing professional competence, assuming leadership roles, improving their understanding of the public school setting, and gaining skills in the practice of effective feedback; procedures employing development and attaining teaching. Appropriate for master teachers, school board members, administrators, and board members.

27605 Introduction to Research in Art Education 3 sh.

Methods of inquiry used for research in art education and related disciplines; methods of research design, data collection, and analysis in art education. Offered fall semester. Same as 47-36.

27624 Seminar: Art Education 3 sh.

Theories of education as they apply to teaching; the evaluation of aesthetic experiences in visual and applied arts; aesthetic judgment as it relates to other disciplines in education; review of art education development. Offered fall semester. Same as 47-36.

27624 Seminar: English Education 3 sh.

Development of significant developments in English education through primary and secondary readings. Prerequisite: Consent of instructor. Same as 47-36.

27625 Seminar: Physical Education for the Athlete 3 sh.

Research literature for research and research studies of high school physical education. Offered each semester.

27626 Seminar: Mathematics Education 3 sh.

Analysis of current research, research methodologies, and curriculum developments in mathematics education. Topics vary from year to year. Prerequisite: Consent of instructor. Offered fall semester. May be repeated. Same as 47-36.

27631 Seminar: Special Topics in Health Education 3 sh.

Synthesis of research on topics pertaining to health teaching and teaching. Required of all doctoral students in health education; optional for other graduate students with permission of instructor. May be repeated.

27634 Seminar: Social Work: Mental Health 3 sh.

Malfunction and intervention procedures for assessing mental illness in public school and community mental health settings. Prerequisite: Consent of instructor. Offered fall semester. May be repeated.

27635 Seminar: Special Topics in Health Education 2 sh.

Topics of current concern in the learning and teaching of health and social education. Offered fall semester. May be repeated during the academic year.

27636 Seminar: Physical Education in Schools 2 sh.

Physical education in schools as a means of achieving better mental health through the physical activities of young people. Prerequisite: Consent of instructor. Offered fall semester. May be repeated.

27638 Seminar: Science Education 2 sh.

Researches in current and advanced science education: topics of research in educational implications of current developments. Prerequisite: Consent of instructor. Same as 47-36.

27639 Seminar: Special Issues in Education 2 sh.

Analysis of functions in art education and related disciplines, Research in art education, and art education research. Offered each semester. May be repeated. Same as 47-36.

27641 Seminar: Research in Art Education 2 sh.

Prerequisite: Consent of instructor.

Special Education

Chair: CHARLES H. HINES

Faculty: problems aimed health, EDD, E. Hines, Paul C. P. Stahul; associate professor Raymond E. Pembert; assistant professor Linda J. Brown, Alan B. Frank, Kathryn C. Barden, John J. Klut, and Andrew J. McPhee; associate professor Stewart E. Stahul; associate Dingemans, Neil B. Frings, Phyllis M. Hever.

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

Undergraduate Programs

The Division of Special Education provides its graduates will continue to find opportunities as teachers of special classes in the public schools or as resource teachers for teachers working with handicapped children in regular classrooms. Opportunities in the latter area reflect the trend in special education toward the accommodation of handicapped children in regular classrooms with supplemental help rather than the segregation of handicapped children in special classes.

The University of Iowa in special education aims to give the B.A. or B.S. student a knowledge of the characteristics of exceptional children, of education programs currently provided for exceptional children, methods of reaching exceptional children, and practical experience with exceptional children.

A student majoring in special education may qualify to teach the mentally retarded at the elementary level (State of Iowa Approval 81) to teach the mentally retarded at the secondary level (State of Iowa Approval 81). Endorsement 2D, or to teach the physically handicapped at the elementary level (State of Iowa Approval 81). Both elementary-level programs require that the student also complete the requirements for certification in Elementary Education (State of Iowa Endorsement 10). At the secondary level the student must complete the regular secondary education foundations program and complete the major in special education, including student teaching with the mentally retarded at the secondary level.

Two areas of concentration are also offered. Students interested in teaching preschool handicapped must complete a major in early childhood education. Students interested in teaching severely/profoundly handicapped must also complete a major in elementary or secondary mental retardation.

Program Requirements

Elementary Mental Retardation First Year

Summer: 3.0 Introduction to Special Education 2.0
7.130 Exceptional Children 3.0
7.135 Mental Retardation 3.0

Second Year

7.131 Teaching Mildly Mentally Retarded Elementary 3.0
7.235 Practicum with Mildly Handicapped 2.0
7.135 Teaching Moderately, Mentally Retarded 2.0
7.134 Practicum with Moderately Handicapped 2.0

Third Year

7.192 Supervised Teaching with Mentally Retarded 7.0

Students completing this program will be recommended for State of Iowa Approval 81 (Mental Disabilities K-9).

Elementary Physically Handicapped First Year

7.30 Introduction to Special Education 2.0
7.130 Exceptional Children 3.0
7.128 Orientation to Rehabilitation of Physically Handicapped Child 3.0
3.15 Introduction to Speech and Hearing Processes and Disorders 3.0

Second Year

7.138 Methods of Teaching Physically Handicapped 3.0
7.54 Practicum with Moderately Handicapped 2.0

Third Year

7.193 Supervised Teaching with Physically Handicapped 7.0
Students completing this program are recommended for State of Iowa Approval 84 (Physical Disabilities-K-8), and upon graduation in the physically handicapped program are eligible to apply for the Janet R. Zober Memorial Tolkien Slipped which will be awarded to the recipient during the junior or senior year. The recipient of this one-weekend scholarship is chosen on the basis of financial need, demonstrated scholastic ability, judgment, and promise of success in a professional teaching career in special education.

Secondary Mental Retardation
First Year
TU:30 Introduction to Special Education 2 s.h.
TU:130 Exceptional Children 3 s.h.
TU:135 Mental Retardation 3 s.h.
TU:100 Introduction to Secondary School Teaching 2 s.h.
TU:91 Pre-education Practicum (optional) 2 s.h.
777 Educational Psychology and Measurement 3 s.h.
781 Audiovisual Equipment for Instruction 1 s.h.
541 Introduction to Sociology: Principles 4 s.h.
or
542 Introduction to Sociology: Problems 4 s.h.

Second Year
TU:32 Teaching Mildly Mentally Retarded: Secondary 3 s.h.
TU:33 Practicum with Mildly Handicapped 2 s.h.
TU:136 Teaching Moderately Mentally Retarded 2 s.h.
TU:54 Practicum with Moderate Handicapped 2 s.h.
TU:133 The Culture of Differing in Education Settings 3 s.h.
TU:103 Facilitating Career Development in Schools 4 s.h.
TU:103 Selection and Use of Media for Instruction 3 s.h.
54:141 Juvenile Delinquency 3 s.h.
or
54:140 Criminology 3 s.h.

Third Year
TU: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 41 (Mental Disabilities 7-12).

Preschool Handicapped
First Year
TU:130 Exceptional Children 3 s.h.
TU:135 Mental Retardation 3 s.h.
TU:136 Orientation to Rehabilitation of Physically Handicapped Child 3 s.h.
3:16 Introduction to Speech and Hearing Processes and Disorders 3 s.h.

Second Year
TU:120 Methods of Teaching Preschool Handicapped 3 s.h.
TU:136 Teaching Moderately Mentally Retarded 2 s.h.

Third Year
TU:193 Supervised Teaching with Preschool Handicapped 7 s.h.
Students completing this program will be recommended for State of Iowa Endorsement in Preschool Handicapped, pending program approval by Iowa Department of Public Instruction.

Severely/Profoundly Handicapped
First Year
None

Second Year
TU:131 Teaching Severely/Profoundly Handicapped 3 s.h.
TU:35 Practicum with Severely/Profoundly Handicapped 3 s.h.

Third Year
TU:194 Supervised Teaching with Severely/Profoundly Handicapped 4 s.h.
Students completing this program will be recommended for State of Iowa Endorsement in Severely/Profoundly Handicapped, pending program approval by Iowa Department of Public Instruction.

Undergraduate Admission
Eighty-five students who have completed at least one year of college coursework are accepted each special education each year. Admission decisions are based on cumulative college grade point average, recommendations of the graduate program, and suitability for the candidate. Examples of acceptable volunteer or paid experience with handicapped people are: counseling in a summer camp program for the handicapped, work with the handicapped sponsored by community or religious organizations, athletic or child-mentoring activities with handicapped children, and teaching experience in classes for the handicapped.

Documentation forms are available from the Division of Special Education Office. Documentation forms and the application to the Teacher Education Program must be submitted by May 10.

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 for the graduate program have completed 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. or Ed.S. degree levels. Individual certificates or additions to present certificates are available at the graduate level in elementary and secondary teaching and emotional disabilities, school psychology, research methodology, educational psychology, educational administration, and special education.

Master of Arts
Most students admitted to the M.A. program in special education are seeking to add an approval to teach either emotionally disturbed 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 38 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 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 this program include a master's degree in special education or equivalent; preparation and certification in special education; and a minimum of one year full-time teaching experience before admission to the program.

Educational Specialist in Special Education Administration

The primary objective of the program is to provide advanced training and experience to enable graduates to obtain entry-level positions in administration. The career focus of the program is on middle management positions, such as supervisors and assistant directors. Successful completion of the program qualifies the person for certification in Iowa to serve as a director of special education (State of Iowa endorsement 463) and also qualifies the person for the 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 50 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 certification in some area of teaching exceptional children, and classroom experience as a teacher.

Educational Specialist in School Psychology

The purpose of this program is to provide coursework and internship training in the areas of education and psychology which will enable 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 40). 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 as least a 3.5 grade-point average on previous coursework.

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 preference to applicants with several years of in-service.

Special 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 behavior 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 Janer Zolbar Memorial Tuition Stipend is available to an undergraduate student in the training program for teachers of the physically handicapped.

General Admission Requirements

Graduate admission requirements of the Division of Special Education conform to those used generally by the College of Education, with the following additions:

Completion of the Graduate Record Examination (GRE) Aptitude Test before being admitted to the program (combined scores of 1400 or above are preferred); and

Documentation of having worked successfully with children and youth.

Courses

5120 Introduction to Special Education 3 s.h.

General educational programming course required of undergraduate majors in special education; discussion of assessment process, IEP development, systematic teaching, behavior analysis. Prerequisite: admission to undergraduate special education program.

5211 Teaching Mildly Handicapped Exceptional Students 3 s.h.

Methods of assessing and teaching skills in math, language arts, social learning, vocation (research). Prerequisites: TUD 130, TUD 135, and TUD 138.

5213 Teaching Mildly Handicapped Exceptional Students 3 s.h.

Methods of assessing and teaching skills in academic and vocational areas; classroom management; transition from secondary school to work. Prerequisites: TUD 130, TUD 135, and TUD 138.
7023 Practice with Mill Handicapped
Supervised practice with mildly handicapped, Prerequisite or permission. TF: 106 or TF: 108.
7024 Practice with Mentally Handicapped
Supervised practice with moderately handicapped. Prerequisite or permission. TF: 108 or TF: 106.
7025 Practice with Severely Handicapped
Supervised practice with severely/profoundly handicapped, Prerequisite or permission. TF: 106.
7030 Integrating Whole Handicapped into Regular Classrooms
Designed to give educators involved with mildly handicapped students broader knowledge of acceptable methods and the ability to identify and provide for their learning needs.
7031 Development of Teaching Education Programs for Visually Impaired
7033 Methods of Teaching Handicapped
Focus on teaching strategy with a variety of handicapping conditions is developmental handicapped, cognitive, and emotional handicapped, Prerequisite: TF: 106, TF: 108, and TF: 100.
7035 Secondary School Job Placement and Training for Handicapped
Explore curriculum, programs, and delivery systems which help handicapped students become productive and self-supporting adults. Prerequisite: TF: 106 and TF: 108.
7102 Child Development
Examine the child's development, focusing on the physical, social, emotional, and cognitive development of the handicapped. Field work stations and job training sites are required.
7121 Characteristics and Teaching Strategies: The Exceptional Child
Introduction to characteristics of exceptional students in educational settings, examined with teaching strategies useful for educating the exceptional student in general education settings.
7016 Exceptional Children
Review of exceptional childhood and school programs for transfer students and students in special education.
7121 Introduction to Learning Disabilities
Broad examination of the field's abuse, history, definition, teaching approaches, programs, and topics of special emphasis.
7120 Introduction to Emotional Disabilities
Examine the causes, symptoms, and teaching approaches for emotional disabilities with special emphasis on secondary students.
7132 The Gifted Child in Education
Pedagogical strategies for identifying and working with significantly different children of any age. Related research on impact of compensatory education, students, from the viewpoint of disabilities instead of exceptionalities.
7136 Teaching the Gifted
7017 Teaching the Gifted
Focus on content area of different expectations for a secondary level of children, using a different approach and the role of the professional educator.
7136 Mental Retardation
7136A Mental Retardation
Content of the various educational programs and the role of the professional educator.
7136B Teaching Mentally Retarded Children
Using strategies and teaching with mentally handicapped children, emphasis on elementary secondary age students.
7137 Education of the Gifted
Designed to provide the following information regarding the gifted, retardation, emotional retardation, and behavior disorders. Prerequisite: TF: 106, TF: 108, and TF: 100.
7137A Methods of Teaching Physically Handicapped
Research in special techniques and adaptations needed when working with physically disabled children and adults with disabilities. Prerequisite: TF: 106, TF: 108, and TF: 100.
7137B Education of the Physically Handicapped Child
Seven缺陷和教育学
Seven defects, physical and emotional, relevant to the education of physically handicapped children, areas of review of various handicapping conditions, causes and special considerations of each. Offered fall semester and summer session.
7137C Methods of Teaching Physically Handicapped
Teaching in inclusive education programs, emphasis on teaching strategies useful for educating the exceptional student in general education settings.
7137D Supervised Teaching with Physically Handicapped
7137E Supervised Teaching with Mentally Retarded
Prerequisite: consent of instructor.
7137F Supervised Teaching with Mentally Retarded
Prerequisite: consent of instructor.
7137G Supervised Teaching with Mentally Handicapped
Prerequisite: consent of instructor.
7137H Supervised Teaching with Severely Handicapped
Prerequisite: consent of instructor.
7137I Supervised Teaching with Exceptional Education
Responsibilities and necessary educational preparation for students, especially those who have been identified by districts of special education, offered fall semester.
7137J Supervised Teaching in School Psychological Services
Prerequisite: permission of instructor, teaching experience in psychological services, or educational leadership in school settings. May be taken for credit or noncredit, TF: 106, TF: 108, TF: 100, and consent of instructor.
7137K Internship in Elementary Education
7137L Internship in Secondary Education
7137M Internship in Vocational Education
7137N Internship in Special Education
7137O Internship in Special Education
7137P Internship in Special Education
7137Q Internship in Special Education
7137R Internship in Special Education
7137S Internship in Special Education
7137T Internship in Special Education
7137U Internship in Special Education
7137V Internship in Special Education
7137W Internship in Special Education
7137X Internship in Special Education
7137Y Internship in Special Education
7137Z Internship in Special Education
7138 Bilingual Education Program
7139 Bilingual Education Program
7139A Bilingual Education Program
7139B Bilingual Education Program
7139C Bilingual Education Program
7139D Bilingual Education Program
7139E Bilingual Education Program
7139F Bilingual Education Program
7139G Bilingual Education Program
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7139T Bilingual Education Program
7139U Bilingual Education Program
7139V Bilingual Education Program
7139W Bilingual Education Program
7139X Bilingual Education Program
7139Y Bilingual Education Program
7139Z Bilingual Education Program
7140 Ed. of the Emotionally Disab....
72282S Integration of Assessment Information (3-4X)
Supervised practice in the integration of educational, psychological, social, and medical information to identify handicapping conditions of children and adolescents to obtain the above information and present comprehensive case studies in class. Prerequisites: 72126S, 72124S, 72231S, 72725S, and consent of instructor.

72283S Counseling Theory and Practice (5-6X)
Same as 72285S, 72480S.

72288S Advanced Laboratory Practice with Exceptional Children (3-4X)
Observation, experimentation, and individual reportage pertaining to problems of teaching, behavior, and administration, evaluation, classroom aides, and application of curricular materials for educable children. Prerequisite: consent of instructor.

72289S Individual Inclusion in Special Education (3-4X)
Prerequisite: consent of instructor.

72291S Internship/Field Experience in Psychology (5-6X)
For Ed.S., and Ph.D. students in school psychology. Supervised internship is prepractical evaluation, consolidation, and cementing of knowledge and skills. Prerequisites: 72100S, 72104S, 72124S, 72125S, 72126S, and consent of instructor. Prerequisites for Ph.D. students upon completion of all required coursework as well as Ed.S. or requirements.

72292S Seminar: Current Issues in School Psychology (3-4X)
Readings and discussion of the current issues in school psychology such as ethical and legal standards, certification, testing, etc. For advanced students in school psychology. Prerequisite: consent of instructor.

72293S Seminar in Research in Special Education (3-4X)
Section I: (theoretical) reviews major studies in the field of special education. Section II: (research oriented) first semester, intensive study in research methodology and research experience in research facilities on campus. Second semester, advanced student research, writing, research and procedures of classroom observation, and developing research criteria. Prerequisite: consent of instructor.

72294S Seminar in Special Education Administration (3-4X)
Reviews new developments in administration. Major current trends each year. May be repeated. Prerequisites: 72105S, 72106S, and consent of instructor.

72295S Practicum in College Teaching (3-4X)
Prerequisite: consent of instructor. Provides experience in college teaching, preparation of course content, classroom presentation, development of laboratory activities, and evaluation of student work. Prerequisite: consent of instructor.

72296S Internship in Special Education (3-4X)
Provides on-the-job or off-the-job experience as an intern in school district or area education agency. Develops skills in supervision and administration of special education. Prerequisite: consent of instructor.

Prerequisite: consent of instructor.

72299S Educational Specialist Research (3-4X)
Research involving data analysis, and writing of reports on completion or requirements for the Ed.S. degree. Prerequisite: consent of instructor.

72482S Ph.D. Thesis in Special Education (3-4X)
Prerequisite: consent of instructor.

72488S Ph.D. Thesis in School Psychology (3-4X)
Prerequisite: 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 a new process, product, material, or system that is useful to our society. This activity demands a high degree of creativity coupled with broad knowledge, 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 is the responsibility for the undergraduate engineering curricula, laboratories, counseling, and other aspects of the undergraduate educational programs. The second responsibility is the graduate programs leading to Master of Science and Doctor of Philosophy degrees in modern areas of engineering. Education at the graduate level includes extensive activities in creative research and design in laboratories of the college by faculty members and graduate students.

Programs Offered

The College of Engineering offers programs leading to the Bachelor of Science degree in the professional fields of chemical engineering, civil engineering, electrical engineering, industrial engineering, and mechanical engineering. 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.

The college also offers an undergraduate program leading to the Bachelor of Science in engineering degree for students whose career objectives cannot be met by the professional programs. The biomedical engineering program is an option within this degree structure.

Any of the undergraduate programs offered by the College of Engineering may be combined, in a five-year option, with a program leading to the Bachelor of Arts degree in the College of Liberal Arts.

The undergraduate programs in chemical, Civil, Electrical, Industrial, and Mechanical Engineering are accredited by the Accreditation Board for Engineering and Technology (ABET) of the American Association of Engineering Societies (AAES) formerly the Engineers' Council for Professional Development (ECPD).

Undergraduate Programs

Degree Requirements

The engineering Bachelor of Science degrees require 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 a baccalaureate degree must be enrolled in the College of Engineering for at least the last 30 semester hours or 45 of the last 60 semester hours and must have a minimum grade-point average of 2.0 of the 4.0 scale. All college work used to satisfy the degree requirement as well as all work undertaken at The University of Iowa.
Admission Requirements

To qualify for admission to the College of Engineering as a freshman, an applicant must have:

- Completed the American College Test with a composite standard score of 24 or above and a standard score of 24 or above in mathematics.
- Successfully completed at least one and one-half units of algebra, one unit of plane geometry, and one-half unit of trigonometry; and
- Ranked in the upper one-half of his or her high school graduating class.

High school physics and chemistry are recommended for all applicants.

Transfer applicants must submit a formal application and an official transcript of college work undertaken at other institutions. Each applicant should have:

- Completed at least one semester of calculus or its equivalent; and
- Maintained a cumulative grade-point average of at least 2.3, based on a 4-point marking system.

A maximum of 64 semester hours (or the equivalent) from a junior college will be accepted toward a baccalaureate degree.

After reviewing the records of either a freshman or transfer student applicant who does not meet minimum admission requirements, the director of admissions may admit the applicant unconditionally, admit on probation, require a summer session trial enrollment, or deny admission. Applicants who do not meet all of the criteria for admission to the College of Engineering are automatically considered for admission to the preengineering program in the College of Liberal Arts.

Curricular Structure

The undergraduate curricular programs in engineering are designed to assure an adequate foundation in mathematics and science, the humanities and the social sciences, engineering science, and engineering methods. Added to this base is preparation in an engineering specialization appropriate to the challenge presented by today’s complex and difficult technological problems. The overall objective of the curricular programs 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 objective of the curriculum is to prepare students for the practice of engineering.

The curriculum is structured into four parallel streams extending through the entire four years of undergraduate study. The streams are mathematics, basic and engineering sciences, humanities and social sciences, and engineering analysis and design. The mathematics, basic and engineering sciences, and humanities and social sciences develop the background required for engineers. The practice of engineering involves the ability to utilize this background to determine practical solutions to real problems. This ability is developed in the analysis and design streams. The course sequence in this stream begins with 560:1 Introduction to Engineering in the first semester of the freshman year and terminates with senior-level design courses during the final year.

Approximately one-half of the courses in the four streams 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 completed during 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, or not declare a major during this period, with only minor adjustments in scheduling. This gives students ample 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 elective sequence, which is also common to each program, each degree program specifies a required group of courses which provide a common depth and breadth of topics 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 not otherwise 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.
- 10:3 Rhetoric 4 s.h.
- 22M:39 Engineering Calculus I 4 s.h.
- 580:1 Introduction to Engineering 2 s.h.
- 580:3 Engineering Graphics 2 s.h.
- Total 15 s.h.

**Second Semester**
- 4:16 Elementary Chemistry Laboratory 2 s.h.
- 10:2 Rhetoric 4 s.h.
- or Free elective 3 s.h.
- 22M:38 Engineering Calculus II 4 s.h.
- 580:4 Engineering Computations 3 s.h.
- 190:7 Statics 2 s.h.
- Total 14 or 15 s.h.

A maximum of 7 semester hours is allocated for substitution of the rhetoric requirement. Students who qualify for 10:3 will be allowed 3 semester hours of free elective, while those taking the 10:2 semester-hour sequence of 10:1 and 10:3 may apply only 7 semester hours toward their engineering program.

The courses listed above are required of all students in engineering; 4:14 Principles of Chemistry II is recommended during the second semester for students who are biomedical or chemical engineering majors.

Humanities and Social Sciences Requirements

The goal of the humanities and social sciences aim 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 16 semester hours of
Bachelor of Arts degree in the College of Liberal Arts and the Bachelor of Science degree in the College of Engineering. By proper scheduling of coursework in consultation with advisors from the colleges of Liberal Arts and Engineering, the student in the combined program can normally meet the baccalaureate degree requirements of both colleges in five academic years.

Cooperative Education Program

Cooperative education involves the integration of academic work with practical experience in an organized program. Participating students alternate periods of 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 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 meeting 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 periods, with a corresponding improvement in academic record.

Another important aspect of the experience gained, although it is difficult to evaluate, is the increased awareness of the many nonlecture considerations involved in any engineering project.

The co-op phase ordinarily begins during the summer 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 at least one full year of work experience. The program is an option available to qualified students on a voluntary basis.

Undergraduate Academic Advising Center

The Undergraduate Academic Advising Center helps students who have not selected a program of study. Included in this group are students who may be considering engineering, among other fields of study, but who are not yet ready to declare a specialized major.

For help in choosing a program, students are assigned an adviser from the dean's office rather than from a specific department. These students meet frequently and regularly with their assigned adviser for help with various academic matters. They may range from building a schedule of courses for the next semester to receiving counseling on choosing a career. For the convenience of students, the offices of the advisers are located in the residence halls. For more information, contact the Director, Undergraduate Academic Advising Center, Burge Hall, The University of Iowa.

Academic Standards

Semester Load Limit

A normal academic load is about 15 semester hours of coursework for a semester, 8 for a summer session. No student may register for more than 18 semester hours in the semester, or 9 in a summer session, without the permission of the dean to the dean.

Classification of Students

Students in the College of Engineering are classified by the number of semester hours of credit earned and applicable to a bachelor's degree in engineering, according to the following table:

- Freshman — less than 20 semester hours
- Sophomore — 20 to 35 semester hours
- Junior — 35 to 50 semester hours
- Senior — 50 or more semester hours

Marking System

The college uses the 4-point marking system, in which grade points are awarded on a scale descending from A=4. For a full description see the
Academic Probation and Good Standing

A student enrolled in the College of Engineering with plans to attain the following minimum semester and cumulative grade-point averages based on all work taken at The University of Iowa shall be placed or continued on academic probation:

Freshman—1.70
Sophomore—1.80
Junior—1.85
Senior—1.90

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 will not be permitted to register without specific approval following two consecutive semesters on probation. A student who has not made satisfactory improvement in scholarship may be dismissed from the college. A student dismissed from the college for poor scholarship may petition the assistant to the dean for permission to re-enroll after an interval of two regular semesters.

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 assistant 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 assistant to the dean only after recommendation of the student's adviser and program chair.

Credit by Examination

Students who have acquired knowledge in subject matter areas from sources other than college registrations may be granted the opportunity to obtain credit toward graduation by examination. Conditions and limitations of this policy are established by the faculty of the College of Engineering. A student wishing to exercise this opportunity should apply to the assistant to the dean.

Advanced Placement

Under the Advanced Placement Program of the College Entrance Examination Board, a high school senior may take comprehensive achievement examination in chemistry and in analytical geometry and calculus. The College of Engineering grants college credit and advanced placement of students who achieve satisfactory standards in these examinations. For information, write to the College Entrance Examination Board, 475 Riverside Drive, New York, N.Y. 10027.

Pass-Fail Option

A maximum of two courses taken on a pass-fail basis may be applied toward satisfaction of the humanities and social sciences requirement. The pass-fail option may not be used for courses taken to satisfy the metric requirement.

Second-Grade-Only Option

A student may elect to repeat a course with only the new grade being counted in his or her grade-point average. This option can only be elected prior to the time of completing a course for which the repeated course is a prerequisite. The option may be applied to no more than three courses and it may be applied only once to a given course. Transfer students may apply the option as a pre-registered basis. For example, a student transferring no more than 40 semester hours of applicable engineering coursework may use this option for a maximum of three courses, while a student with between 42 and 86 semester hours of credit may use this option for no more than two courses, and students with 86 or more semester hours of transfer credit may use this option for only one course. Students wishing to exercise this option should apply to the assistant to the dean.

Satisfactory-Fail Courses

The noncredit professional evening course, which are required in each of the professional programs, are offered only on a satisfactory-fail basis. No other engineering courses are offered on this basis. An F (failure) grade earned for such a class will not satisfy any portion of the professional seminar requirement.

Incomplete and No Report Grades

A mark of (incomplete) or Q (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 incompletes from the spring semester are exempt from completing the course during the succeeding summer session.

Recognition for Academic Achievement

The college awards degrees "with highest distinction" to students in the highest 3 percent of the graduating class, "with high distinction" to students in the next highest 5 percent, and "with distinction" to students in the next highest 5 percent. Ranking is based on baccalaureate grade-point average and on any college-level study undertaken in the final registration.

To be eligible for this form of recognition, the students must take his or her final 80 semester hours of study in residence in the college, and must have completed at least 45 semester hours of study in the college before his or her final registration.

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 an 'A' or 'A-' standing on the current or past semester's record, are recognized by inclusion on the dean's list for that semester.
Student Organizations and Activities

The College of Engineering student body is organized as the Associated Students of Engineering. This organization provides a mechanism for planning and carrying out activities involving the entire college. Such as the annual open house, UNICEF Week, and the student-faculty reception for new students. Other college-wide matters of general student interest are also handled through the association.

Engineering students publish their own student journal, the Iowa Tables. All positions are staffed by students, with faculty serving only in an advisory capacity.

Student branches of the American Institute of Chemical Engineers, the American 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 UI chapter of Tau Beta Pi, a national honorary society for students in all engineering fields, gives special recognition to superior students in their junior and senior years. Senior and graduate engineering students who have special ability in research are eligible for election to Sigma Xi. Phi Lambda Upsilon, honorary chemistry and chemical engineering fraternity; Chi Epsilon, honorary civil engineering fraternity; Eta Kappa Nu, honorary electrical engineering fraternity; and Pi Tau Sigma, honorary mechanical engineering fraternity, recognize the work of outstanding students in their respective fields.

Student organizations dedicated to providing support and assistance to the development of more equitable enrollments of women and minorities in the college are the Black Students in Engineering and the student chapter of the Society of Women Engineers. A local chapter of Phi Tau, a national professional engineering 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 involve graduation from an accredited engineering curriculum of at least four years, following at least four years of practical experience.

In Iowa the agency that controls and monitors the licensing procedure is the Iowa Board of Engineering Examiners. The first step in the procedure for students enrolled in an accredited program is to pass an examination on engineering fundamentals given at the University near the time of graduation. 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 a registered "Professional Engineer."

Graduate Programs

The general rules and regulations for the graduate programs are set forth by the Graduate College. However, the specific admission and degree requirements for each graduate engineering program are included in the sections devoted to the individual programs. Also included in those sections is a description of the financial aid available in each program and also a description of the principal areas of study and research.

College Facilities

The Engineering Library

The Engineering Library is a center of college activity, its collection includes 50,000 books and 800 periodicals. It is equipped with microfilm and microfiche readers, and provides study spaces for 130 library users.

Computer Based Education (CBE) Laboratory

The Computer Based Education Laboratory provides interactive computer assembly with the University's IBM 370-195, PDP 750, and HP-2500 computer systems via video display and two color terminals. The laboratory also contains line printers for use by students and faculty for high volume printed output as well as video equipment for instructional demonstrations.

Computer Services

Services of the Weeg Computing Center are used extensively by students and faculty of the college. The computing facilities include a number of microcomputers and microprocessors. The university provides access to the Weeg Computing Center at a number of computer centers within the college for specialized use by students and faculty.

Employment Placement Services

Students and alumni can avail themselves of the placement services provided by the College of Engineering. Interview rooms and a placement library of informational material are located in the Engineering Building. Assistance is available for arranging interviews and obtaining information on job opportunities.

Organization of the College

Extraordinary demands have been imposed on the engineering profession in general and on engineering education in particular by the broadening spectrum of activities in which the engineer participates and by the increasing complexity of society. The college has responded to these demands by imparting to the traditional pattern of organization an organizational structure of engineering college. It has organized its faculty and staff into different types of college: laboratory—academic
Iowa Institute of Hydraulic Research

The Iowa Institute of Hydraulic Research (IHR) is the third basic unit of the College. The institute is widely acknowledged to be one of the world's leading organizations in the areas of basic and applied fluid research.

The institute co-sponsors programs of fundamental research, and advanced design and analysis in the areas of environmental pollution, bioengineering, naval hydrodynamics, river mechanics, ice hydraulics, hydrology, water resources, hydraulic structures, fluid mechanics, and advanced instrumentation and data handling techniques for fluids research.

Dissert student participation in all research and consulting activities is one of the hallmarks of the institute's operation.

Center of Materials Research

The Center of Materials Research is the fourth basic unit of the college. It was founded on the philosophy that technology of the future require the integration of a variety of disciplines in order to transcend traditional methods of research and development.

The center is externally focused on programs of fundamental and applied research in biomedical engineering with particular emphasis on biomechanics. Sponsored projects include traumatic head and spinal injuries, hemodynamics, cardiac mechanics, prosthetic heart valves, and bone and ligament biomechanics.

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.

Course Numbering System

The titles of each course offered by the College of Engineering is prefixed by a 3-digit prefix and a 3-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 division of the college that offers the course, as follows:

52—Engineering Science
54—Information Engineering
56—Materials Engineering
58—Systems Engineering

The third digit of the prefix identifies the engineering core courses or the courses offered by the divisions for a specific curriculum program, with the correspondence between the third digit and the curriculum programs as shown below:

0—Engineering Core
1—Biomedical Engineering
2—Chemical and Materials Engineering
3—Civil and Environmental Engineering
5—Electrical and Computer Engineering
8—Industrial and Management Engineering
7—Division Specialty Programs
8—Mechanical Engineering

The three-digit suffix of a course number identifies the level and type of course. Generally the suffix numbers below 100 designate courses primarily for undergraduates, numbers 100 to 199 designate courses for undergraduates and graduates, and number 200 and above designate courses primarily for graduates. The tables below provides further means of conveying information on the level and type of courses:

0:00—Freshman core courses
0:01—Sophomore core courses
0:02—Junior core courses
0:03—Required courses in undergraduate programs
Biomedical Engineering

Department Chair: Kwan Kim

The past two decades have seen a tremendous growth of technological activity in biology and medicine. As engineers have become increasingly involved with projects in the life and health sciences, there has been increased need for them to become more familiar with the fields of biology and medicine. Recognition of this need has led to the emergence of a new interdisciplinary engineering activity designed to bridge the gap between the life sciences and engineering—the biomedical engineering profession. The undergraduate biomedical engineering program is a curricular option offered within the School of Science program in engineering.

Students who complete this program may pursue career opportunities in industry (the design and development of biomedical instrumentation, diagnostic aids, life support systems, prosthetic and orthotic devices, man–machine systems, etc.), in government (Veterans Administration, Environmental Protection Agency, Food and Drug Administration, etc.), or in research universities to pursue their formal education in the engineering, medical, or legal professions.

Many engineering college faculty members have joint appointments in the College of Medicine. Both biomedical engineering undergraduates and graduate engineering students participate actively with college faculty members and their colleagues in the life and health sciences on projects of mutual interest.

Courses which have been designed primarily for the biomedical engineering program are identified by the digit 1 in the third position of the course number prefix. Course descriptions are given in the Catalog with the sections devoted to the Divisions of Information and Materials Engineering.

The curriculum outlined below is built on the foundation provided by the College of Engineering core curriculum, and has been developed to prepare students for the challenges and opportunities associated with careers in the biomedical engineering profession. The program has been carefully designed to enable the student to satisfy the entrance requirements of the Graduate College and the colleges of Medicine, Dentistry, and Law.

Curriculum

Sophomore Year

First Semester
22M:37 Engineering Calculus III 4 a.h.
560:18 Thermodynamics 4 a.h.
540:11 Introduction to Electrical Science 3 a.h.
560:15 Materials Science I 3 a.h.
560:10 Dynamics 3 a.h.
Total 17 a.h.

Second Semester
22M:38 Differential Equations and Linear Algebra 4 a.h.
31S:03 Principles of Animal Biology 5 a.h.
540:12 Linear Systems Analysis 3 a.h.
560:19 Mechanics of Deformable Bodies 3 a.h.
Total 15 a.h.

Junior Year

First Semester
560:33 Probability and Statistics for Engineering and Physical Sciences 3 a.h.
560:21 Principles of Design I 3 a.h.
540:16 Principles of Electronic Instrumentation 4 a.h.
561:81 Elementary Bio-engineering 3 a.h.
530:20 Mechanics of Fluids and Transfer Processes 4 a.h.
561:97 Professional Seminar 0 a.h.
Total 17 a.h.

Second Semester
29:92 Physics of Waves and Optics 3 a.h.
4:121 Organic Chemistry I 3 a.h.
560:22 Principles of Design II 3 a.h.
*Technical electives 3 a.h.
Humanities or social science electives 4 a.h.
and engineer the complete process as well as the equipment used in it. They choose the proper raw materials and operate the manufacturing facilities efficiently, safely, and economically. They are employed by basic industries such as heavy chemicals, petroleum, coal, and solvents as well as consumer-oriented industries such as plastics, food, fertilizers, pharmaceuticals, cosmetics, paints, and synthetic fibers. They are engaged in research, process and product development, process and plant design, actual production operation, and sales. Many experienced engineers become managers or administrators. Courses which have been designed primarily for the chemical and materials engineering program are identified by the digit 2 in the third position of the course number prefix. Course descriptions are provided in this catalog primarily within the section devoted to the Division of Materials Engineering.

Bachelor of Science
The Bachelor of Science in Chemical Engineering degree program prepares the student for work in design, supervision, development, or sales. The curriculum includes extensive training in chemistry on the same level as chemistry majors. A sequence of mathematics courses together with the common engineering core courses provides a strong foundation. Undergraduate students have the opportunity to work with faculty members and graduate students on current research topics.

Curriculum

Sophomore Year

First Semester
22M:37 Engineering Calculus II 4 s.h.
560:10 Dynamics 3 s.h.
540:11 Introduction to Electrical Science 3 s.h.
560:15 Materials Science I

Humanities or social science elective 3 s.h.

Total 16 s.h.

Second Semester
22M:38 Differential Equations and Linear Algebra 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
540:15 Principles of Electronic Instrumentation 4 s.h.
520:20 Mechanics of Fluids and Transfer Processes 4 s.h.
562:12 Process Calculations 3 s.h.

Total 18 s.h.

Junior Year

First Semester
4:131 Physical Chemistry I 3 s.h.
29:82 Physics of Waves and Optics 3 s.h.
560:21 Principles of Design I 3 s.h.
562:43 Design for Energy and Momentum Transfer 4 s.h.
Technical elective 3 s.h.
562:91 Professional Seminar 0 s.h.

Total 16 s.h.

Second Semester
4:132 Physical Chemistry II 3 s.h.
4:143 Advanced Chemistry Laboratory I 3 s.h.
562:41 Chemical Engineering Thermodynamics 3 s.h.
562:44 Mass Transfer Operations 3 s.h.
Humanities or social science elective 3 s.h.
562:91 Professional Seminar 0 s.h.

Total 15 s.h.

Senior Year

First Semester
4:121 Organic Chemistry I 3 s.h.
562:45 Chemical Reaction Kinetics 3 s.h.
562:45 Economics in Design 3 s.h.
562:47 Unit Operations Lab I

Humanities or social science elective 3 s.h.
562:91 Professional Seminar 0 s.h.

Total 14 s.h.

Second Semester
4:122 Organic Chemistry II 3 s.h.
4:141 Intermediate Chemistry Laboratory I 3 s.h.
562:49 Unit Operations Lab II 2 s.h.
562:49 Chemical Engineering Process Design 3 s.h.
Graduate Program

The Chemical and Materials Engineering Program offers curricula leading to the Master of Science and Doctor of Philosophy degrees. Through coursework 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 industrial 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 teaching.

Research is currently being carried out in air pollution, chromatography, drift simulation, flow through porous media, membrane separations, fire particles, reaction kinetics, and transport phenomena. Many research projects are funded by external agencies such as National Science Foundation, NASA, and private industries. Some funded projects are described briefly below.

Air Pollution

The study of transport phenomena of atmospheric processes including the analysis 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 origin 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

Kruisven flow and surface diffusion through various micro-porous media are being studied. Practical applications are in gas separations, catalysis, and solar refrigeration, currently a solar energy application it is being investigated.

Membrane Separations

Several novel membrane processes have recently been developed in Chemical and Materials Engineering laboratories. This group is now actively investigating various aspects of these new techniques, such as optimization and design, as well as working on the development of an oxygen generator, and pervaporation process. A number of industrial gases as well as natural gas can be purified by these processes. These membrane processes can also be applied to separate liquid mixtures such as alcohol and water.

Mechanical Behavior of Cast Steel

Quantitative, optical, and scanning electron microscopical and metallographic analysis are being used to relate the characteristic features of the fracture surface and the microstructure to experimentally measured bulk mechanical properties such as the fracture toughness, fatigue crack growth rate, etc.

Master of Science

A thesis and a minimum of 30 semester hours of graduate credit are required, including at least 24 semester hours completed in residence at this University. Work completed in Saturday classes as residence credit may not exceed 9 semester hours. However, 6 semester hours may be completed if residence is at another recognized graduate college or by correspondence study at The University of Iowa.

The minimum coursework requirement is 24 semester hours (about eight courses), and the remainder of the 30 semester hours may be devoted to research. To be eligible for the M.S. degree, the student is expected to maintain a minimum grade-point average of 3.0. Each M.S. degree candidate must defend his or her thesis at the final oral examination. Although it is possible to obtain an M.S. degree within one, two, or three semesters, the average time allows three to four semesters to complete the requirements.

Doctor of Philosophy

The Ph.D. degree is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit. However, the candidate is normally expected to have completed three academic years of residence, or two years if he 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 doctors candidates 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 work. These examinations are arranged by members of the examining committee. The examinations may be repeated. The rules for the comprehensive examination may be found in the manual of the Graduate College. There is no foreign language requirement. A final examination, which is a defense of the thesis, culminates 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
Civil and Environmental Engineering

Program Chair: Harriet Kane
Professor, professor Emeritus, graduate advisor, Richard C. Drake, professor, Emeritus, Harriet Kane, John F. Kennedy, Emeritus, W. Miller, W. McGinnies, Donald B. McDonald, Wayne L. Nesbitt

Assistant professor: Reid B. Hagey

Associate professor: Joseph M. Neves

Assistant professors: Jeannie B. Allen, Thomas J. Cleary, Richard C. Kanak, John L. Robinson, John C. Yetter, and John W. Yee

Associate professor: John J. O'Mara


Assistant professor: Yousuf Hakim

Degree offered: B.S.C.E., M.S., Ph.D.

Civil engineering is the oldest and one of the three largely fields of engineering. It traditionally has been concerned with facilities that are both large-scale and essential to modern life. Civil and environmental engineering projects include transportation systems and their components, such as bridges, highways, public transit systems, railroads, harbors, airports, seaports, and even spaceports: large-scale structures and office buildings to provide enclosed working and living space, environmental and hydraulic systems to provide clean water and air, including filtration plants and distribution systems for municipal and industrial water supplies, waste water treatment plants, dams, levees, and irrigation systems.

In fact, it is something that is one of a kind, large, and important. This is a great opportunity for engineers to perform in the graduate course with minimum difficulty. Since these undergraduate courses are in the nature of make-up courses, most do not carry credit toward a graduate degree.

Financial Aid

A number of fellowships, assistantships, and scholarships are available to graduate students who qualify. These are awarded on a competitive basis.

Civil and Environmental Engineering offices; others may be called upon to construct or supervise the projects they have designed. These field assignments, many of which are in remote and fascinating parts of the world, are particularly appealing to many civil engineers.

Courses designed primarily for the civil and environmental engineering program are identified by the digit 3 in the third position of the course number prefix.

Course descriptions are published in this catalog within the sections devoted to the divisions of Energy, Materials and Systems Engineering.

Undergraduate Program

Civil engineering courses built 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 foundation engineering; environmental engineering, hydraulic engineering; and transportation engineering.

Curriculum

Sophomore Year

First Semester

226:37 Engineering Calculus III 4 a.h.
560:10 Dynamics 3 a.h.
540:11 Introduction to Electrical Science 3 a.h.
560:10 Materials Science I 3 a.h.
50:5 10 Thermodynamics I 4 a.h.
Total 17 a.h.

Second Semester

226:58 Differential Equations and Linear Algebra 4 a.h.
540:12 Linear Systems Analysis 3 a.h.
560:18 Mechanics of Deformable Bodies 3 a.h.
520:20 Mechanics of Fluids and Transfer Processes 4 a.h.
Humannities and social science elective 3 a.h.
Total 17 a.h.
Graduate Programs

The graduate program in civil and environmental engineering offers curricula preparing students for professional careers and further study in environmental engineering, environmental science, hydraulics, structural mechanics and materials, structural and geotechnical engineering, transportation, and water resources.

Hydraulics and Water Resources

The hydraulics and water resource curricula are associated with the Iowa institute of Hydraulic Research, whose laboratory is well-known. The senior staff members of the institute are professors in the program and devote about half-time to teaching. The institute offers unique opportunities for students to participate actively in the research, analysis, and design aspects of real-world problems. Considerable attention is given to the use of digital computers in mathematical modeling and in the acquisition and processing of data. The water resources curriculum also has ties to the Institute of Economic Research, the Institute of Urban and Regional Research, and the colleges of Business, Law, and Liberal Arts. Courses in hydraulics and water resources are described in this catalog within the sections devoted to the Division of Energy Engineering.

Environmental Engineering and Science

The environmental engineering curriculum has two basic areas: one engineering and the other applied science. This curriculum maintains a heavy emphasis on interdisciplinary research and academic activities with other programs and colleges on campus, including the Institute of Hydraulic Research, the Institute of Agricultural Medicine and Environmental Health, the Institute of Urban and Regional Planning, and the colleges of Business, Law, and Liberal Arts. Coursework and research present a general program of study or specialization in one of three areas: water quality management, air quality management, or solid waste management. Environmental engineering and science courses are described in the “Division of Energy Engineering” section of the Catalog.

Structural and Geotechnical Engineering and Structural Mechanics and Materials

The structural and geotechnical engineering and structural mechanics and materials curricula may be directed towards design, analysis, research, or a combination of these. Special strengths exist in the areas of time-dependent behavior of reinforced and prestressed concrete structures, optimal design of structural systems, soil behavior, and constitutive theory. Coursework and research in structural analysis, structural design, soil mechanics and foundations, optimal design, and materials are available. Courses in these areas are described in the “Division of Materials Engineering” section of the Catalog.

Transportation

The transportation curriculum includes work in planning, design, construction, and operation of transportation systems and facilities. A cooperative relationship exists with the graduate program in urban transportation offered by the Center for Urban Transportation (see “Urban Transportation”). Transportation courses are described in the “Division of Systems Engineering” section of the Catalog.

Laboratory and other facilities available in the civil and environmental engineering program are described in the “Division of Energy Engineering” and “Division of Materials Engineering” sections of the Catalog.

Master of Science

The Master of Science programs in civil and environmental engineering are designed to permit further concentration in the areas or the student’s choice. Graduate students are placed in advanced technical positions in industry, consulting firms, or government, or they may continue full-time study. Current and projected demand for M.S. graduates is excellent.

In general, the plan of study, with or without thesis, must include a minimum of 30 semester hours credit, with not more than 6 semester hours of credit...
allowed for the thesis. An additional 6 semester hours are required in the environmental engineering curriculum.

Each student, with the approval of his or her advisor, 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 near 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 coursework 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. This examination is normally taken when substantially all of the student's coursework has been completed.

The program culminates in a final examination, in which the candidate must successfully defend his or her dissertation.

Doctoral candidates are expected to maintain a grade-point average of 3.2 throughout the doctoral program.

The program also cooperates in interdisciplinary doctoral programs with the program in Applied Mathematical Sciences in the 'Division of Mathematical Sciences' section in 'Liberal Arts'.

Admission

Each curriculum of the program is quite flexible, and students may be admitted from all disciplines of engineering as well as the mathematical and basic sciences.

An applicant for the master's degree program is expected to have a cumulative undergraduate grade-point average of 2.5 (A=4); usually, 3.0 is expected. For admission to candidacy for the doctorate, the minimum grade-point average is 3.2 based upon previous graduate work. Applicants whose grade-point averages are slightly lower are invited to correspond regarding admission possibility.

All applicants must meet the general admission requirements of the Graduate College (see 'Graduate College').

Financial Aid

A significant number of research assistantships are available on a variety of research projects, as are a limited number of teaching assistantships and fellowships. Selection of recipients is based on scholastic achievement and research interest.

Electrical and Computer Engineering

Program chair: Robert C. Ando


Adjunct professors: spots, C. Alon, assistant professors: D. K. M. Collier, Shri K. Vepakomma, Paul L. Vogel.

Adjunct academic professor: voice Dale D. Depino (E.E., '63, Ph.D.)

Electrical engineering is concerned with the generation, measurement, transmission, processing, and control of electrical energy and information in the form of electrical signals. The important role of the digital computer in these activities is emphasized by the program title, electrical and computer engineering.

Grades of the program are employed in semiconductor, aerospace, telecommunications, navigation, circuits, computer, and power industries. With the B.S.E.E. degree, the electrical engineer is prepared to do engineering work in design, development, manufacturing, sales, market analysis, consulting, field service, and management. The employment outlook for the foreseeable future is quite favorable.

Courses which have been designed primarily for the electrical and computer engineering program are identified by the digit 3 in the third position of the course number prefix. Course descriptions are provided in this catalog within the section devoted to the Division of Information Engineering.

Undergraduate Program

The undergraduate program leads to a Bachelor of Science in Electrical Engineering, with a strong emphasis on computer engineering. The curriculum deals with electronics, instrumentation, control and communications systems, and computers.

To prepare the student for the electrical engineering profession, the curriculum provides a strong background in circuits, computers, control systems, electromagnetics, communication theory, electronics, and design, in addition to the basic engineering core of mathematics, engineering design, engineering science, and humanities.

Technical elective and advanced offerings are offered in biomedical systems, computer systems, electronic circuits, signal processing, digital and control systems, applied physics, power, and solid state devices.

Curriculum

Sophomore Year

First Semester

350:10 Dynamics 3 s.h.
224E:37 Engineering Calculus III 4 s.h.
620:18 Thermodynamics I 4 s.h.
560:15 Materials Science I 3 s.h.
640:11 Introduction to Electrical Science 3 s.h.
Total 17 s.h.
### Second Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>23M:38</td>
<td>Differential Equations and Linear Algebra</td>
<td>4.0</td>
</tr>
<tr>
<td>640:18</td>
<td>Principles of Electronic Instrumentation</td>
<td>4.0</td>
</tr>
<tr>
<td>545:30</td>
<td>Digital Systems and Computers</td>
<td>3.0</td>
</tr>
<tr>
<td>540:12</td>
<td>Linear Systems Analysis</td>
<td>3.0</td>
</tr>
<tr>
<td>540:19</td>
<td>Humanities or social science elective</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>17.0</strong></td>
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**Junior Year**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>First</td>
<td>29:92</td>
<td>Physics of Waves and Optics</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>580:39</td>
<td>Probability and Statistics for Engineering and Physical Sciences</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>545:80</td>
<td>Principles of Electrical Engineering Design I</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>545:72</td>
<td>Electromagnetic Theory</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>545:80</td>
<td>Communication Systems</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td><em>545:91</em></td>
<td>Professional Seminar</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>15.0</strong></td>
</tr>
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**Second Semester**

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>29:83</td>
<td>Modern Physics</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>545:81</td>
<td>Principles of Electrical Engineering Design II</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>540:40</td>
<td>Electronic Circuits</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>545:60</td>
<td>Control Systems</td>
<td>3.0</td>
<td></td>
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<tr>
<td><em>545:91</em></td>
<td>Professional Seminar</td>
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<td><strong>Total</strong></td>
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**Senior Year**

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<tr>
<td>First</td>
<td>545:70</td>
<td>Electrical Engineering Materials and Devices</td>
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<tr>
<td></td>
<td>546:80</td>
<td>Principles of Electrical Engineering Design III</td>
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- *Professional Seminar must be taken at least once in the junior year and once in the senior year.*
- **Science core electives:**
  - 520:20 Mechanics of Fluids and Transfer Processes: 4.0 s.h.
  - 580:19 Mechanics of Deformable Bodies: 3.0 s.h.
  - 580:37 Engineering Management Science: 3.0 s.h.

**Biological science course**
The humanities and social science electives must be selected to satisfy the requirements of the College of Engineering.

**Graduate Program**
The electrical and computer engineering program offers a curriculum leading to the Master of Science and Doctor of Philosophy degrees. Thesis and nonthesis M.S. programs are available, and other may precede Ph.D. studies.

Excellence in scholarship and research is stressed through close contact with the faculty throughout the period of graduate study and through programs tailored to individual needs. Each graduate student is regarded as an important member of the program whose contributions are highly valued.

Each student selects an advisor, and, with the advisor, plans an individual program, with freedom of choices bounded only by a few broad guidelines imposed by the Graduate College and by the program. Foreign languages and research tools, for example, are not required by the Graduate College or by the program, but are introduced into the program by the student and to the extent that they are appropriate in light of the student's goals.

The basic program, which is fundamental to electrical and computer engineering, has wide application, and this has required in interdisciplinary research in areas such as biomedical engineering, computer systems, and applied mathematics. Graduate students are encouraged to take courses in several interdisciplinary areas.

Opportunities are available for the graduate student to choose his or her own interests and participate in a creative effort. Well-established and funded research laboratories exist in the following areas:

**Voces and Materials**

- Plasma physics, electro-optics, and acoustics investigations utilize specialized laboratories in both the Engineering Building and Physics Research Building. Typical projects involve nonlinear wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasonics.

**Engineering in Biology and Medicine**

- Computer-assisted electrophysiology, cardiac arrhythmia analysis, automated drug infusion, and image processing and speech recognition utilize a laboratory with its own real-time computer system. Some of these projects involve close collaboration with colleagues in the College of Medicine.

**Controls and Systems**

In cooperation with outside agencies, several projects applying modern control theory are in progress. These include stability considerations, time delay, and digital implementation. In the controls laboratory, investigation of real-time digital control, nonlinear system theory, and digital estimation utilize mini- and micro-computers. Other topics include applications of stochastic processes to problems in control and communication systems. Current investigations emphasize estimation, identification, and control for stochastic dynamical systems having parameters modeled as jump processes.

**Computer Systems**

Fault-tolerant subsystem design and reliable system configurations, fault diagnosis, data security, data communications, networks, distributed systems, and self-checking systems are typical project areas.

In cooperation with nearby industry, the program also offers off-campus courses in electrical and computer engineering.
Master of Science

Thesis and nonthesis programs are available. The degree requires at least 30 semester hours of credit in an approved program acceptable to the advisor and the graduate committee. This must include at least 12 semester hours of coursework in electrical and computer engineering, not including courses required for electrical engineering undergraduates, and at least nine semester hours of coursework outside of electrical and computer engineering, ordinarily from mathematics and physics.

With thesis, up to eight semester hours of the 30 semester hours may be research credit.

Without thesis, at least 3 semester hours of 547:108 Individual Investigations are required in addition to the 12 semester hours in electrical and computer engineering. This independent study is to be a staffed project completed under the supervision of the student's program 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 must consist of an oral defense of the thesis, or thesis candidates, of the materials in 547:108 Individual Investigations, for nonthesis candidates.

Doctor of Philosophy

Requirements are:
Balancing 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 courses numbered 547;
Successful completion of the Ph.D. qualifying examination;
Successful completion of the Ph.D. comprehensive examination;
Successful completion of a research program; and
Successful completion of a final oral defense of the thesis.

Graduate Admission

The normal requirement for admission to the graduate program is at least a 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. An M.S. student with a grade-point average less than 2.7 but better than 2.3 on courses in electrical and computer engineering, mathematics, and physics may be admitted on probation.

Students with baccalaureate degrees in related areas (e.g., physics, mathematics, and computer sciences) may be admitted. In such cases, additional coursework without graduate credit may be required.

Each application is reviewed on an individual basis. Extenuating circumstances may permit deviations from the normal standards.

Financial Aid

A number of fellowships, traineeships, assistantships, scholarships, and industrial grants are available to graduate students who qualify. These are awarded on a competitive basis.

Engineering

Program advisor: George L. Zeller
Faculty includes Ted L. Young, Adrian J. Kuzniar, George L. Zeller, Arthur L. Hsu, Joseph L. Watts, and associated professor James Andrews. K.B. Caudron assistant professor Charles Brandenburg
Degree offered: B.S.E.

The increasing emphasis on interdisciplinary and multidisciplinary career objectives in engineering emphasizes the desirability of having available a degree program which combines a strong background in engineering fundamentals with the flexibility of choosing a major elective sequence to achieve specific educational goals of individual students. The primary objective of the Bachelor of Science in Engineering program is to provide such an option for students whose goals cannot be achieved within the framework of the designated degree programs.

The objective of the B.S.E. degree program is to provide the opportunity for each student to develop an individually-tailored program. However, a proper balance between breadth and depth must be maintained in order to result in a well-balanced education. To accomplish this, the curriculum contains core courses of sufficient breadth and depth to guarantee an excellent background in engineering fundamentals. The remainder of the program consists of a guided elective sequence.

The major portion of the elective program is scheduled for the final three semesters and builds from background acquired in the engineering core courses. In consultation with an advisor, the student's elective sequence is planned to achieve a coordinated program which satisfies the specific objectives of the student. The sequence is selected and is approved by the program review committee. The committee is also responsible for monitoring the progress of all students in the program and offering suggestions and advice as required.

Curriculum

Sophomore Year
First Semester
22M:37 Engineering Calculus II 4 s.h.
530:16 Thermodynamics I 4 s.h.
540:11 Introduction to Electrical Science 3 s.h.
560:15 Material Science I 3 s.h.
560:10 Dynamics 3 s.h.
Total 17 s.h.

Second Semester
22M:38 Differential Equations and Linear Algebra 4 s.h.
540:12 Linear Systems Analysis 3 s.h.
550:16 Mechanics of Deformable Bodies 3 s.h.
560:16 Principles of Electronic Instrumentation 4 s.h.
*Humanities or social science elective 3 s.h.
Total 17 s.h.
Industrial and Management Engineering

Program chair: J.M. Lichtenegger
Founder: professors J.M. Lichtenegger, J.R. Hines
Economics professor: J.S. Deegel
Marketing professors: C.L. Hines, C.M. McMillan
Accounting professor: R.O. Askin
M. Chisholm, D.R. Himes, G.R. Brandon
Degree offered: B.S.E.E., M.S., Ph.D.

The industrial and management engineer has many opportunities for employment and service in industrial, governmental, research, and public service organizations. Employment opportunities are among the most varied in the engineering field. The industrial and management engineer may hold a staff position as adviser to management, or be in a line-with participating directly in management decisions. Representative job titles include industrial engineer, systems analyst or engineer, operations research analyst, intern consultant, supervisor, or manager. The industrial and management engineer may be employed by a manufacturing firm, a government agency, or by a service organization such as an airline, bank, hospital, or university.

In general, the industrial and management engineer is concerned with the analysis, design, and implementation of systems involving the optimal use of resources—human, material, and financial. The systems involved may range from small subsystems to extremely large systems. In order to accomplish these varying activities, the industrial and management engineer is skilled in mathematics, physical sciences, management, and human relations, as well as in computer systems, economics, optimization, and systems analysis and design. Both the undergraduate program in industrial engineering and 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.

Courses which have been designed primarily for students in industrial engineering and management engineering are identified by the digit 6 in the third position of the course number prefix. Most such courses are described in this catalog in the section devoted to the Division of Systems Engineering (566 numbers) while a few courses pertaining to materials science or processing may be found in the section pertaining to the Division of Materials Engineering (566 numbers).

Undergraduate Program

The undergraduate curriculum in industrial engineering requires a strong foundation of courses in engineering sciences, mathematics, design, social sciences, and humanities. Advanced courses include specialty courses in management science, production, operations research, quality control, human engineering, and information systems.

Curriculum

Sophomore Year

First Semester
650.10 Dynamics 3 a.h.
540.11 Introduction to Electrical Science 3 a.h.
660.15 Materials Science I 3 a.h.
560.27 Engineering Management Science 3 a.h.
22M.37 Engineering Calculus III 4 a.h.
Total 16 a.h.

Second Semester
650.12 Linear Systems Analysis 3 a.h.
520.18 Thermodynamics I 4 a.h.
22M.38 Differential Equations and Linear Algebra 3 a.h.
660.70 Materials Science II 3 a.h.
Economics elective 3 a.h.
Total 17 a.h.

Junior Year

First Semester
*311:1 Elementary Psychology 4 a.h.
540.18 Principles of Electronic Instrumentation 4 a.h.
560.21 Principles of Design I 3 a.h.
580.39 Probability and Statistics for Engineering and Physical Sciences 3 a.h.
660.71 Materials Processing I 3 a.h.
Graduate Program

The goal of the industrial and management engineering graduate program at both the M.S. and Ph.D. levels is to provide a modern, highly flexible curriculum of graduate studies. Each student’s course of study will be based on the student’s background, career objectives, and sound academic practice. Program faculty have research interests in areas related to engineering management and human factors; operations research, computing, and engineering statistics; materials processing; and transportation.

Student programs emphasizing operations research or engineering management and human factors may be developed from Division of Systems Engineering courses offered mainly in industrial and management engineering program faculty. M.S. students desiring a more general program may combine these two emphases at the M.S. level, while those desiring some specialization in engineering statistics, computing, or materials processing may accommodate these preferences through the combination of industrial and management engineering program courses and appropriate electives from other programs and departments of the university. Ph.D. programs center either in the area of operations research and engineering statistics or engineering management and human factors. Graduate students with an interest in transportation may participate in a program which is jointly administered with the Program in Urban Transportation.

Program faculty will periodically offer evening classes on campus or graduate extension classes off-campus.

Master of Science

The M.S. program requires a minimum of 30 semester hours of course work and research. Students may choose either a thesis or a non-thesis program, although research assistants may be required to write an M.S. thesis as a condition of their support. All students, however, are encouraged to obtain the master’s degree with thesis. Students desiring eventual admittance to Ph.D. study are strongly advised to select the thesis option.

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, approved by the industrial and management engineering program chair and by the Graduate College dean.

Entering students in all programs will find some background in computer programming and probability and statistics helpful. Engineering management and human factors students will find elementary psychology and engineering economics useful preparation. Compensating coursework may be required for students with nonengineering backgrounds.

The student is required to maintain a minimum grade-point average of 2.75 on a minimum of 30 semester hours of graduate work to be eligible for the M.S. degree. The nature of the final examination will be specified by the examining committee. The examination usually consists of both written and oral parts. The examination will explore further the student’s course preparation and an appropriate individual investigation.
Doctor of Philosophy
Typically, Ph.D. programs in industrial and management engineering contain at least 90 hours of study including research for the dissertation. Part-time Ph.D. study is discouraged. Average is no foreign language requirement.

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 coursework specified by his or her advisor and 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 committee can evaluate the student's academic preparation in the light of the research to be performed. Upon having satisfactorily completed this examination, the student is accepted as a candidate for the Ph.D. and normally has only to complete and defend the dissertation.

Graduate Admission
Students with an M.B. objective may be admitted from accredited baccalaureate degree engineering discipline or the mathematical and physical sciences with a minimum grade-point average of 3.0 and/or an acceptable GPHS score. Students may also be admitted from business or social science programs on an individual basis. B.S. degrees are usually first admitted to the M.B. program.

Financial Aid
A number of quarter-time and half-time graduate student teaching and research assistantships are available. Awards are based on the student's academic record and upon an assessment of the student's potential contribution to the research and teaching goals of the program. Advanced graduate students may also qualify for higher stipend Instructor positions. Students should write to the chair of the industrial and management engineering program for further information.

Mechanical Engineering
Program chair: Venkata C. Patel

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

Mechanical engineering is broadly concerned with energy, including its transformation from one form to another, its transmission, and its utilization. Mechanical engineers conceive, plan, design, and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems—including complex man-machine systems—for energy conversion, environmental control, materials processing, transportation, material handling, and other purposes.

They are engaged in all the engineering functions including applied research, creative design, development, testing, production, operation and maintenance, marketing and sales, and management, and are employed throughout all industries.

Courses designed primarily for the mechanical engineering program are identified by the digit 8 in the third position of the course number prefix. Course descriptions are provided in this Catalog within the sections devoted to the Division of Energy and Materials Engineering.

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 elective in both the technical and the humanities and social science areas. In consultation with his or her advisor, a student can develop capabilities to meet individual goals within the framework of the curriculum. All upperclass students are strongly encouraged to undertake projects of either an experimental or analytical design solution to a current problem.

Curriculum
Sophomore Year
First Semester
224:37 Engineering Calculus III 4 s.h.
560:10 Dynamics 3 s.h.
564:11 Introduction to Electrical Science 3 s.h.
565:15 Materials Science I 3 s.h.
620:16 Thermodynamics I 4 s.h.
Total 17 s.h.

Second Semester
224:38 Differential Equations and Linear Algebra 4 s.h.
564:12 Linear Systems Analysis 3 s.h.
564:18 Principles of Electronic Instrumentation 4 s.h.
560:19 Mechanics of Deformable Bodies 3 s.h.
Graduate Program

The mechanical engineering graduate program at both the M.S. and Ph.D. levels is designed to educate students to utilize contemporary methods at an advanced level during a professional career in engineering design, development, and research. Each student's course of study is based on his or her background, career objectives, and sound academic practice.

Student programs emphasizing fluid mechanics, heat transfer and energy conversion, biomechanics, or mechanical systems may be developed from courses offered by the mechanical engineering program faculty. M.S. students declaring a more general program may combine these emphases, while those desiring some specialization may accommodate these preferences through the combination of program courses and appropriate electives from other programs and departments of the College of Engineering and the University. Ph.D. student programs may center in any one of these areas, through the choice of appropriate coursework and research topics.

A graduate handbook describing the program policies and requirements in greater detail is available upon request.

Master of Science

Students who have earned a baccalaureate degree in an engineering curriculum or a curriculum in the mathematical or physical sciences with a minimum grade-point average of 2.75 of 4.0, are eligible for being considered for admission to the Master of Science degree program in mechanical engineering.

The M.S. program requires a minimum of 30 semester hours of coursework and research. Students may choose either a thesis or non-thesis program, but the latter must include at least 8 hours of 200-level courses. To earn the M.S. degree, the student is required to attain a minimum grade-point average of 3.0 of 4.0 on a minimum of 30 semester hours of graduate work and 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. However, students with assistantship delays or other constraints, may require between one and two calendar years to complete the degree.

Doctor of Philosophy

Students who have earned a baccalaureate or post-baccalaureate degree in an engineering curriculum or a curriculum in the mathematical and physical sciences may be admitted as Ph.D. students if they have a minimum undergraduate grade-point average of 3.0 of 4.0. Reference letters, scores on the Graduate Record Examination (GRE) Aptitude Test, student research interests, previous graduate study grade-point average, and other factors may also be considered in making the decision to admit a student. Students with a Ph.D. objective, who enter with a baccalaureate degree, are first admitted to the M.S. program.

Typically, Ph.D. programs in mechanical engineering require approximately 90 semester hours of credit, including research for the dissertation, beyond the baccalaureate degree. There is no foreign language requirement. Part-time students who cannot study full time on campus will rarely be admitted to the Ph.D. 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 coursework for the Ph.D. degree. For students pursuing the M.S. degree from the mechanical engineering program at The University of Iowa, the M.S. final examination can be regarded as 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 student's committee and the program Ph.D. study is discouraged. Students who are admitted, a Ph.D. committee is selected by the student and his or her advisor, subject to their willingness to serve, and approved by the program chair and the graduate dean. The Committee shall include at least five faculty members.
Water Quality
Mathematical modeling of water quality in streams and lakes; optimal allocation of resources to control water pollution; removal of trace organics in water treatment; kinetics of nitrification in streams; sludge stabilization in wastewater treatment; disposal of sludge from water and wastewater treatment; anaerobic treatment of porcine gas scrubber wastewater; biological reduction for the removal of sulfates from ground water; anaerobic treatment of high-strength thermal sludge conditioning wastes; pilot scale evaluation of microencapsulation for sludge dewatering.

Water Resources
Economics of water usage; management of reservoirs; stochastic hydrology; systems analysis; watershed modeling; water utilization by waste heat management.

Special Laboratories and Facilities

Undergraduate Instruction
The laboratory for undergraduate instruction in fluid and thermal sciences is located in the Engineering Building and contains a small wind tunnel, a water table, various air, water, and oil flow devices, and facilities for numerous small-scale experiments which demonstrate the principles of mass, momentum, and energy transfer. More specialized experiments are also performed in the other laboratories of the division and with the facilities of the Iowa Hydraulics and Water Resources Laboratory. Experiments in the environmental sciences are performed at the laboratories in the University Water Plant and the P.F. Morgan Sanitary Engineering Laboratory.

Fluids and Hydraulics Laboratories
Since most members of the senior research staff of the Institute of Hydraulics Research hold professorial appointments in the Division of Energy Engineering, the teaching and research functions of the division are closely connected with the research and consulting activities of the Institute, particularly in the areas of fluid mechanics, hydraulics, energy conversion, fluid instrumentation, water resources, and the effects of thermal sciences related to diffusion and dispersal of waste heat in water.

Thermal Engineering Laboratories
Experimental research is conducted in the solar energy, thermal radiation, turbulence, and heat transfer laboratories in the Engineering Building. They have been renovated and expanded recently and are served by a central computer laboratory equipped with modern terminals and a computer-based data acquisition system that provides direct communication links to the University computer center. Specialized equipment consists of a supercomputer test stand with provision for simulation evaluation of several collectors, solar-energy thermal storage facilities, electric and acoustic aerodynamic aerogenerator apparatus, an jet fluid facility with spectrophotometric diagnostic equipment, a spectral bidirectional reflectometer for radiant property measurements, and two-channel hot-wire and laser anemometers.

Environmental Engineering Laboratories
Research in environmental engineering is conducted in the division's Philip P. Morgan Sanitary Engineering Research Laboratory at the Iowa City Municipal Wastewater Treatment Plant, and in the water plant laboratory at the University Water Treatment Plant.

The Morgan laboratory is devoted to research activities in the wastewater treatment area. It includes a modern wet chemistry laboratory and space for bench and pilot studies of the physical, chemical, and biological operations and processes of wastewater treatment. A permanent pilot facility at the Morgan laboratory is a 10,000-gallon aeration tank. Recent research conducted at the Morgan laboratory has included the aerobic treatment of wastes from a variety of sources, including the analysis of urban refuse, the thermal conditioning of sludges, and the processing of grains.

The water plant laboratory is the center of research in the water treatment and natural aquatic systems area. The 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 4,000,000-gallon-per-day water plant is especially designed to enable the isolation of treatment operations for special study without undue interference with the production and supply of treated water to the University. The Iowa River, which flows through the University campus, and the Coralville Reservoir approximately five miles upstream, serve as "natural" treatment systems for microbiology and limnological research. The water plant laboratory has been remodelled to accommodate an expanded level of research activity.

Courses

Engineering Core
451 Chemical Thermodynamics (3)
452 Fluid Mechanics (3)
530/531 Introduction to Heat and Transfer Processes (4, 4.5)
535/535B Elementary Fluid and Thermodynamic Properties (4.5)
535A/535B Advanced Fluid and Thermodynamic Processes (4.5)
535B/535D/545A Fluid and Thermodynamic Processes (4.5)
545B/545D/555A Advanced Fluid and Thermodynamic Processes (4.5)
555/555B/555C Chemical Engineering Majors Only

451 Chemical Thermodynamics (3)
452 Fluid Mechanics (3)
530/531 Introduction to Heat and Transfer Processes (4, 4.5)
535/535B Elementary Fluid and Thermodynamic Properties (4.5)
535A/535B Advanced Fluid and Thermodynamic Processes (4.5)
535B/535D/555A Fluid and Thermodynamic Processes (4.5)
555/555B/555C Chemical Engineering Majors Only
Special Program

3000 Cooperative Education Taking Assignment

Mechanical Engineering

Mechanical engineering students participating in the Cooperative Education Program register in this course during the quarter at the same time as their work assignment. Registration provides a record of participation in the program and in the student's permanent record card. Prerequisite: admission to the Cooperative Education Program and satisfaction of all prerequisite requirements.

3010 Experimental Engineering

Principles of physical measurement, standards, calibrations, evaluation of error, and data analysis. Experiments on a variety of topics illustrating various measurement techniques, experience, and applications. Prerequisite: junior or senior standing in engineering. Same as 100:060.

3011 Statics and Statics Engineering Design

Primary effort directed toward computer-aided design project. Construction of a six-foot methane reactor. Prerequisite: Same as 060:082.

General

231-241 Energy in Contemporary Society

Sustainable: Technological, economic, ecological and social issues in production, delivery, and use, emphasis on cross-disciplinary implications of energy systems. Prerequisite: junior, senior, or graduate standing in engineering. Seminar, Same as 441:159, 441:161, 441:162.

235 Technology of Environmental Pollution Control

Examination of scientific and engineering principles to control the release of pollutants in the air, water, and solid waste; effects of industrial and consumer products on the environment; controls; evaluation of environmental problems and their solutions. Prerequisite: junior or senior standing in engineering.

240 Environmental Planning and Assessment

The creation of a world in which environmental impacts of man-made systems, including transport, power, water, and waste systems, are evaluated and utilized in the planning process. Prerequisite: graduate standing in the university.

241 Environmental Impact Assessment

Development of the methodologies for the evaluation of environmental impacts, avoidance or mitigation of adverse effects and evaluation of new technologies. Same as 440:050.

245 Environmental Engineering

Introduction to the science and practice of environmental engineering, with emphasis on chemical, biological, and physical processes. Same as 441:050.

247-248 Environmental Engineering Laboratory

Computer-aided design and analysis of water and waste treatment processes. Laboratory work will focus on environmental systems. Prerequisite: 247:030 and 247:040.

Thermal Sciences and Energy Conversion

248-40 Thermodynamics I

Applications of thermodynamics to processes in energy conversion, power and refrigeration plants, and chemical processes. Introduction to the gas laws. Introduction to thermal and mechanical energy. Prerequisites: 240:030 and 244:030.

248-41 Heat Transfer

Introduction to the principles of heat transfer by conduction, convection, and radiation; analysis of numerical examples. Prerequisites: 248:40 and 244:030.

248-42 Intermediate Thermodynamics

Thermodynamics of irreversible processes: kinetic theory, enthalpy, heat, and entropy; equilibrium and nonequilibrium processes. Applications in energy conversion. Prerequisite: 248:40.

249-42 Direct Energy Conversion

Introduction to thermodynamics, photochemistry, thermodynamics, thermophotocatalysis, and thermal power, solid-state devices, and photovoltaic devices. Prerequisite: graduate standing in any branch of engineering. Same as 446:120.

249-43 Intermediate Heat Transfer

Steady and transient conduction, forced and natural convection; surface and passive radiation. Prerequisites: 248:40 and 248:41.

249-44 Reaction and Heat Processes

Application of chemical reaction and heat processes to industrial systems, with particular emphasis on systems in which rate of reaction and energy transfer are rate limiting. Prerequisites: 240:030, 244:030, and 248:40.

249-45 Solar Energy Applications

Solar radiation, solar heat collectors and storage, solar water heating systems, and solar air-conditioning systems. Prerequisites: 248:40 or consent of instructor.

249-46 Solar Energy Engineering Design

Application of solar energy to practical problems. Laboratory work will focus on design and analysis. Prerequisite: 249:45 or consent of instructor.

249-47 Cooling Water Heat Transfer

Fundamentals of conductive heat transfer, analysis of heat conduction in solids, convection heat transfer with convective boundary layers, analysis of turbulent and free convection, radiation as high temperature heat transfer. Prerequisites: 248:40 or equivalent.

249-48 Composites Heat Transfer

Fundamentals of conductive heat transfer; analysis of convective flow in tubes, and free convection of liquids and gases. Analysis of turbulent and free convection. Prerequisites: 248:40 or equivalent.

249-49 Environmental Heat Transfer

Fundamentals of radiant energy transport and analysis of radiative interactions among surfaces. Prerequisites: 248:40 or equivalent.

Environmental Sciences

250-260 Principles of Environmental Engineering

Physical, chemical, and biological principles of water and wastewater systems, air pollution control, and solid waste management. Prerequisite: sophomore or junior standing in engineering.

250-262 Environmental Chemistry

Principles of general, qualitative, and physical chemistry applied in water and air systems. Prerequisites: 240:150 or equivalent.

250-265 Environmental Laboratory

Laboratory study of the chemical and physical behavior of water and air systems, with emphasis on the application of analytical techniques to water and air analysis. Prerequisites: 250:260.

250-266 Environmental Microbiology

Fundamentals of microbiology applied in assessment of water quality and environmental treatment systems. Prerequisites: 250:260.

250-267 Biochemistry

Principles of biochemistry. Application of biotechnology to environmental treatment systems. Prerequisites: 250:260 and 250:262.

250-268 Environmental Systems

Principles of waste management and water and air pollution control. Prerequisites: 250:260 and 250:262.

250-269 Environmental Control Systems

Principles of systems analysis and control. Prerequisites: 250:260 and 250:262.
Division of Information Engineering

Chen Robert C. Antreasian

The Division of Information engineering coordinates laboratories in the electrical and computer engineering program with the core courses in electrical science, linear systems and instrumentation. The division is responsible for the teaching of the core courses and the courses in the electrical and computer engineering program.

Research is encouraged in the appropriate programs as well as interdisciplinary areas of current interest. Well established and funded research laboratories exist in the following special areas:

Waves and Materials
Plasma physics, electro-optics, and acoustics experiments utilize specialized laboratories in both the Engineering Building and Physics Research Building. Typical projects involve nonlinear wave interaction, plasma instabilities, laser optics, acoustic wave behavior, and ultrasonics.

Engineering in Biology and Medicine
Computer-assisted electrophysiology, heart arrhythmia analysis, automated EKG analysis, image processing and speech recognition utilize a laboratory with its own real-time computer system. Some of these projects involve close collaboration with colleagues in the College of Medicine.

Control and Systems
In cooperation with outside agencies, several projects applying modern control theories are in progress. These include stability considerations, time delay, and digital implementation in the control laboratory. Investigation of real-time digital control, nonlinear system theory, and computer systems utilizes mini and microcomputers.

Computer Systems
Fault-tolerant subsystem design and reliability-system configurations are typical project areas. Other topics include data security, data communications, networks, and self-checking systems.

Facilities
The Computer Engineering Laboratory supports undergraduate and graduate teaching and research in the area of real-time computer systems. Included are dual PDP 11/34 minicomputers with magnetic tape, disk storage, multiple terminals, a line printer, and a graphics terminal. Other peripherals include A/D converters, D/A converters, real-time clocks, and digital input/output interfaces. This laboratory also supports our research and teaching efforts in image processing and includes a real-time digital signal processor, a video interface, and software for image processing, a Remak image processing system with a high-speed video monitor, and a digitizing graphics tablet.

The Medical Engineering and Computer Laboratory is a research laboratory devoted to the application of technology to the solution of basic and clinical cardiovascular problems. It includes a PDP 11/45 minicomputer with disk storage, magnetic tape, line printer, graphic terminal, and A/D and D/A converters. This laboratory also includes extensive instrumentation facilities including an eight-channel strip chart recorder with general purpose amplifiers, two instrument interfaces, tape recorders, a stimulator, tunable filters, electromyographs, and several other general purpose electronic instruments.

The Microprocessor Laboratory supports teaching applications in microprocessors and their applications. The laboratory has a broad range of commercially available equipment.

For fulfillment of Ph.D. degree requirements, Prerequisite: consent of advisor.

For fulfillment of Ph.D. degree requirements, Prerequisite: consent of advisor.
processes, and mechanics and mechanical systems. The division supports research activity by the faculty and students in the division and assists in the recruitment of qualified graduate students. Research in the division encompasses experimentation in and mathematical modeling of the thermomechanical behavior of materials at the molecular level; basic study of transport processes with particular emphasis on mechanisms of diffusion and surface phenomena; modern optimization theories as they relate to the analysis and design of complex structures and mechanical systems; failure of materials through experimentation and development understanding of failure mechanisms; application of the principles of continuum and theoretical mechanics to the analysis of biomedical systems and the design of prosthetic devices; study of the properties of granular media, including powders and soils, and the effect of particle shape on physical properties; and the implementation of strain or behavior of concrete and composite building materials in the design of large structures.

Biomechanics Laboratory

The laboratory is equipped for research in stress analysis and modeling associated with biomechanical systems. Equipment includes a photoelastic bench with an incidence polarscope, photoelastic oven, fringe multiplier, contour projector, photo-stress meter, and recording equipment.

Chemical Engineering Laboratory

Located in the Chemistry-Botany Building, the laboratory includes pilot-plant equipment for the study of industrial processes, including distillation, drying, fluid flow, and heat transfer. In addition, there are six industrial nuclear reactors and facilities for bio-molecular materials research and investigation of plastics and other materials. Facilities for individual research by graduate students include chromatographs, analog computers, and other instrumentation. A small shop is available for students to use under the supervision of a technician.

Electron Microscope Laboratory

This instructional and research facility is equipped with an RAC EMU-3F electron transmittance microscope and a necessary specimen preparation equipment to permit examination of specimens by the use of thin foil and replica microscopy and X-ray area diffraction. The facility complements the adjacent facility involving the mechanical behavior of materials. Such phenomena as the following may be studied by use of this tool: techniques for the behavior and distribution of dislocations as a result of plastic deformation, detecting fault energy, subgrain boundary formation, reduction damage. Electron tomography and the study of surfaces may be done by use of the replica techniques, and phase transformation may be studied by use of selected area diffraction.

Materials Processing Laboratories

This facility consists of metal casting and welding, metal cutting, and heat treatment and metallographic laboratories, all equipped for instruction and research involving primarily the liquid and solid states of metallic materials. The laboratories are equipped with such items as melting and heat-treating furnaces, a variety of welding equipment, foundry sand testing and molding equipment, pyrometers, nondestructive testers, machine tools and tool form dynamoseters, metal-forging equipment, metallographic specimen-mounting presses and polishers, a variety of metallographic microscopes, and a darkroom.

Materials Testing Laboratory

This laboratory is equipped for the determination of physical and mechanical properties of materials of engineering interest, including metals, polymers, and biomaterials. It includes a compression testing machine, an axial testing machine, and a universal testing machine with mechanical and sophisticated multichannel electronic instrumentation for measuring deformation and stress. It also includes an INSTRON machine for the investigation of fatigue properties of metals. An additional facility in the form of a random function generator for the study of fracture is being added. In addition, the laboratory contains a modern creep testing chamber for continuation of experiments at high temperature. Pulse generator equipment has been acquired more recently for the dynamic response of metals in the high frequency range.

Mechanical Engineering Laboratories

The mechanical engineering laboratories are equipped to give students a wide variety of experience in using modern methods of measurement and analysis, including photometers, a variety of strain gauges, a photo-electric laboratory, and other conventional instrumentation. Particular areas include study of behavior of concrete and composite building materials in the design of large structures.

Powder and Particulates Laboratory

This laboratory is equipped with sampling devices; devices for characterizing bulk properties of powders; vacuum mixers, grinders, and testing equipment; optical microscopes, shelling devices; and mounting and polishing equipment. In addition, there is access to a scanning electron microscope Quantom 720 system, computer center; and specialized engineering and chemistry library facilities and laboratories.

Structural Testing Laboratory

This laboratory is equipped for the determination of physical properties of materials in engineering construction, such as soils, aggregates, concrete, metals, timber, and plastics. Included are a compression testing machine, a universal testing machine, and an axial testing machine, along with mechanical and electronic instrumentation for the
Human Factors

585-555 Human Engineering 2 a.h.
Design of man-machine systems and development of optimization work environment by applying principles of biodynamic, ergonomic, and anthropometric principles to human and environment. Lecture and laboratory. Usually offered spring semester. Periodically offered fall semester. Summer 51.156.

287-146 Psychology in Management

3 a.h.
Application of psychological principles to human relations and supervision; analysis of motivation, leadership, communication, group dynamics, and other topics. Offered fall semester. Even years 2:1-186.

585-465 Human Research Psychology

3 a.h.
Design and conduct of research activities in human behavior engineering. Offered in departmental seminars. Prerequisite: 585-155.

585-490 Human Engineering

4 a.h.
Classification of selected research areas in human factors engineering. Offered in departmental seminars. Prerequisite: 585-155.

583-718 Transportation Engineering

3 a.h.
History of transportation, operation, and control of services, research and design, and new technologies, executive and managerial strategies, economic evaluation of transportation alternatives and urban location. Offered in odd seminars. Prerequisite: 585-155.

583-719 Transportation Systems Analysis

3 a.h.
Transportation systems management and traffic engineering, urban design, design of mass transit systems, and traffic systems analysis. Prerequisite: 583-718 or consent of instructor.

583-715 Transportation Systems Network

3 a.h.
Transportation systems management and traffic engineering, urban design, development of mass network, and location analysis. Prerequisite: 583-718 or consent of instructor.

583-712 Urban Transportation Planning

3 a.h.
Application of city planning principles and traffic engineering techniques to the generation or limitation of transportation problems, traffic characterization, traffic regulation methods, trip generation, distribution, and assignment models, and traffic signal control. Prerequisite: 583-140 or consent of instructor.

583-415 Mathematical Programming I

3 a.h.
Topics include mathematical programming, linear and nonlinear programming, optimization, and maximization. Offered in even seminars. Prerequisite: 583-140.

583-416 Advanced Mathematical Programming

3 a.h.
Linear and nonlinear optimization, network flows, and special topics. Offered in odd seminars. Prerequisite: 583-415 or consent of instructor.

583-417 Integer Programming

3 a.h.
Linear and nonlinear optimization, network flows, and special topics. Offered in odd seminars. Prerequisite: 583-415 or consent of instructor.

583-246 Computer Science Systems

3 a.h.
Design of computer based systems in transportation, urban planning, and other service type systems. Offered by consent. Prerequisite: 583-150 and 583-141.

583-448 Image Processing and Pattern Recognition

3 a.h.
Theory, applications, and algorithms for computer and human pattern recognition. Algorithms include edge detection, pattern recognition, and image processing. Prerequisite: 583-150 and 583-141.

583-120 Digital Signal Processing I

3 a.h.
Analysis and synthesis for reasonable study of system studies. Emphasis is on the statistical properties of digital and the determination of digital correlation and spectral properties of operational systems. Offered in spring semester. Offered in odd semesters. Prerequisite: 583-414 or consent of instructor.

587-150 Graph Theory

3 a.h.
Using graph theory, qualitied graduate students who are not related students may receive credit for certain undergraduate courses offered by the division.

587-160 Advanced Topics

3 a.h.
Advanced topics in systems engineering. Offered based on student interest. Prerequisite: consent of instructor.

587-161 Individual Investigations

3 a.h.
Individual investigations by senior undergraduate or graduate students. Prerequisite: consent of instructor.

589-197 Graduate Seminar

3 a.h.
Graduate seminar for graduate students in industrial and management engineering. Subject matter varies. Prerequisite: 583-155 or consent of instructor.

589-198 Advanced Traffic Engineering Management and Human Factors

3 a.h.
Offered based on student interest.

589-199 Seminars Topics Engineering Seabase, Quality Control and Reliability

3 a.h.
City trips based on student interest.

589-206 Advanced Topics Transportation

Offered based on student interest.

589-207 N.E. Research

3 a.h.
Research at the graduate level, primarily for the M.S. degree in industrial and management engineering.

589-208 Ph. D. Seminar

Research at the Ph.D. level, primarily for the Ph.D. degree in industrial and management engineering.
Graduate College

The University of Iowa has been a leading center of advanced study for three-quarters of a century. Presently, one-fourth of its enrollment is in the Graduate College. This unusually high ratio reflects the breadth of the University's graduate programs and resources, the strength of the graduate faculty with a long tradition of personal and professional concern for students, and the opportunities afforded graduate students for involvement, recognition, and support.

The Graduate College is responsible for the review and approval of proposals for new graduate programs and for the periodic survey and evaluation of existing programs. Through its administration of scholarship, fellowship, and research funds, the Graduate College encourages research and strengthening of departments. It claims 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 10-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.), Doctor of Philosophy (Ph.D.), and Doctor of Musical Arts (D.M.A.) degrees. The college currently confers degrees in the following major fields:

- Accounting—M.A.
- Afro-American Studies—M.A.
- American Studies—M.A., Ph.D.
- Anatomy—M.S., Ph.D.
- Anthropology—M.A., Ph.D.
- Applied Mathematical Science—Ph.D.
- Art—M.A., M.F.A.
- Art History—M.A., Ph.D.
- Asian Civilization—M.A.
- Astronomy—M.S.
- Biochemistry—M.S., Ph.D.
- Biology—M.S.
- Botany—M.S., Ph.D.
- Business Administration—M.A., M.B.A., Ph.D.
- Business Education—M.A., Ph.D.
- Chemical and Materials Engineering—M.S., Ph.D.
- Chemical Physics—M.S., Ph.D.
- Chemistry—M.S., Ph.D.
- Civil and Environmental Engineering—M.S., Ph.D.
- Classics—M.A., Ph.D.
- Community Dentistry—M.S.
- Comparative Law—M.C.L.
- Comparative Literature—M.A., Ph.D.
- Computer Science—M.S., Ph.D.
- Criminal Justice and Corrections—M.A.
- Dental Hygiene—M.S.
- Dramatic Art—M.A., M.F.A., Ph.D.
- Economics—M.A., Ph.D.
- Education—M.A., M.A.T., Ed.S., Ph.D.
- Electrical and Computer Engineering—M.S., Ph.D.
- Endodontics—M.S.
Teaching and Research Assistantships

Available in most departments; stipends typically range between $5,000 and $8,000 a year on a year-round basis. Additional opportunities are also eligible for tuition scholarships; nonresident assistantships (one-quarter time or more) and fees are reduced to realistic rates.

University Teaching-Research Fellowships

For first-year graduate students entering doctoral programs; typical stipends of $6,000 a year on a year-round basis, with all tuition paid, for as many as four years; recipients have teaching and research assignments, but may carry full course loads at the same time, one year out of four and all summers, recipients have full time to pursue studies, research, or writing.

Scholarships

Up to full tuition and fees.

Graduate Fellowships

$4,800 for the academic year.

Other Sources

University and National Defense student loans are available through the University’s Office of Student Financial Aid.

Many departments offer additional support through teaching assistantships, part-time employment in research or part-time teaching appointments. The Office of the Vice President for Educational Development and Research maintains a library of information on public and private agencies which provide funds for research and graduate study. A considerable amount of material has been collected concerning awards for overseas study.

Graduate Student Senate

The Graduate Student Senate is the University graduate student body’s representative organization.
Representatives are elected annually from each department of the University's having a graduate degree program. The senate's primary purpose is to serve the interests of the graduate student body in matters affecting its welfare. The senate advises the dean of the Graduate College on matters pertaining to the Graduate College.

Rules and Regulations of the Graduate College

The Academic Program

Section I. Admission to the Graduate College

A. Application Procedure

All students seeking to register for the first time in the Graduate College of The University of Iowa must secure a formal admission statement from the director of admissions. Applicants may obtain the proper forms from the director of Admissions, The University of Iowa, Iowa City, Iowa 52242.

In addition to these forms, official transcripts from each undergraduate and graduate institution attended must be submitted to the director of admissions by the designated deadline prior to the semester 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 session enrollment. These are general Graduate College deadlines. Individual departments may establish earlier admission cutoff dates.

B. Graduate Record Examination

All applicants prior to consideration for admission should take the Graduate Record of the Graduate Record Examination (GRE) or, for applicants to graduate programs in business administration, the Graduate Management Admission Test (GMAT). Applicants for whom admission data are complete with the exception of scores on the GRE or the GMAT, may, depending on departmental policy, be admitted if they meet all other requirements The GRE or the GMAT must be taken within one session after registration. 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 Advanced Tests are available require these in addition to the Aptitude Test. Inquiries about the Aptitude Test may be directed to University Evaluation and Examination Service; inquirers about the requirement of the Advanced Test should be addressed to the executive of the department in which the applicant is interested.

C. English for Foreign Students

Prior to consideration for admission, foreign student applicants whose native language is other than English must take and pass TOEFL (Test of English as a Foreign Language), unless they have received a degree from an accredited college or university in the United States, the United Kingdom, Canada (except Quebec), Australia, or New Zealand. The examination is given at various times of the year and in many centers throughout the world. Inquiries should be addressed to the Director, TOEFL Educational Testing Service, Princeton, New Jersey 08540.

Foreign students transferring from unaffiliated 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 dean, must take the TOEFL examination and receive a passing grade prior to consideration for admission.

The Graduate College will advise the department of those students already passing the TOEFL test. Individual departments may require such students to take and pass a course at The University of Iowa in English usage designed especially for foreign students.

D. Early Admission

A student who is within four semester hours of having satisfied all the requirements for the bachelor's degree at The University of Iowa or any other accredited college may be given provisional admission.

E. Candidacy

Admission to the Graduate College is not the equivalent of acceptance as a candidate for the master's or doctoral degree, which must be earned through work successfully completed at The University of Iowa. (See "Section X. Master's Degrees," and "Section XII. Doctoral Degrees.")

F. Declaration of Major and Degree

Every applicant for admission must indicate on the application form the department or degree program or certificate program of the 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 file a change of major or degree status in the Office of Admissions.

G. Status upon Admission

All students upon admission fall into one of the following categories:

1. Regular—Students who have met the minimum requirements for admission and who have been accepted by a department, or interdepartmental degree program, for work leading to a graduate degree or certificate or professional improvement.

2. Conditional—Students who are interested in working toward a graduate degree or certificate but who are not required by a department to demonstrate their ability to do satisfactory graduate work before being admitted to regular status. To be admitted in conditional status, the student must be recommended by a department, which will assume responsibility for advising him or her. (See minimum grade-point requirements, "Section XV.") 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 2.50 (3.00 for doctoral students).
and acceptance by the major department, or be dismissed.

3. Special—Students in receipt of a valid bachelor’s degree who wish to register for no more than two courses at a time and who are not planning to become candidates for a graduate degree or certificate. These students, relatively few in number, must obtain special permission to register from the director of graduate studies. Special graduate students are not eligible for a graduate degree or for a certificate in a certificate program.

4. Summer Session—Students with a valid bachelor’s degree and at least a 2.3 grade-point average may register for only one summer session without being accepted by a department or college. (See “Section III” below.) The deadline for application for admission to the summer session will be determined by the director of the summer session and the director of admissions. Before admission to any summer session, including another summer session, the student must file an application and be admitted to regular or conditional status.

II. Minimum Requirements for Admission

Graduates of any college or university accredited by regional accrediting associations may be admitted to the Graduate College if their academic records meet the required standards. At the minimum level, a minimum grade-point average of 2.3 is required for admission to conditional status. A minimum of 2.5 is required for admission to regular status. A grade-point average is computed only of college work if the student has completed at least 12 graduate hours. If the student has not completed 12 graduate hours, the grade-point average is computed upon the undergraduate and graduate work completed. In cases in which a student applying for admission has a grade-point average below the minimum required, but has a Graduate Record Examination score above a point to be designated by the Graduate College dean, his or her case may be forwarded to the department concerned for examination and decision.

Students applying for admission to a doctorate 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 hour of graduate work, a minimum of 2.7 is required on the entire record of college work.

Departments, or committees in charge of interdepartmental degree programs, may, and often do, set higher minimum admission requirements than those set forth above for the University as a whole. Information concerning departmental or program requirements may be obtained directly from the substantive 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 departmental program for work leading to an advanced degree, certificate, or professional improvement except in the department of his or her appointment or closely related department. Such a petition must have prior approval of the department of appointment, then of the college of appointment, and the department in which the study is to be pursued, and the Graduate Council.

Section II. Registration

A. Standard Schedule

Students registered in the Graduate College may register for no more than 15 semester hours of credit in graduate courses. In a schedule of mixed graduate and undergraduate courses, two hours of undergraduate credit will be substituted to one hour of graduate credit, with registration limited to a total of 18 semester hours. This applies to the calculation of academic load only.

Graduate credit is not given for courses numbered under 100. The maximum for the eight-week summer session is eight semester hours, or nine semester hours if two or more semester hours of undergraduate work are included.

The maximum semester hour registration for work scheduled outside of the regular 8-week summer session will be arranged on a basis proportional to that stated above with the approval of the Graduate College dean. Nine semester hours is the regular semester constitute full-time registration. (Followers are required to carry at least nine semester hours during a semester as a condition of their appointments.) Nine-quarter-time and one-third-time appointees are permitted to register for the maximum 15 semester hours per semester and eight semester hours during the eight-week summer session.

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 no semester hour credit.

C. Changes in Announced Credit

Graduate students may not register for any credit in any course that was 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 adviser and the approval of the dean of the Graduate College.

D. Reduced Schedules for Teaching and Research Assistants and Other Appointees

1. One-half-time appointees may register for not more than 12 semester hours during a semester or six semester hours during the eight-week summer session.

2. Five-eighth-time appointees may register for not more than 10 semester hours during a semester or five semester hours during the eight-week summer session.

3. Two-third-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-eighth-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 no more than 1 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 8 semester hours permitted for the 8-week summer session. Registration after the last day of the thirty 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 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 III").
2. Research at approved locations under the direction of members of the graduate faculty of The University of Iowa.
3. Field work as part of a regularly scheduled course or research program.
4. Chvasek off campus by members of the graduate faculty (see "Section X.D." and "Section X.L.C") for minimum semester hours required on campus for the master's and doctor's degree.
5. Residence graduate credit from another Iowa Regents' University (see "Section V.B.").
6. As many as nine semester hours of graduate work taken at the Quad-Cities Graduate Center from faculty other than faculty of the Iowa Regents' Universities, provided the work is acceptable to the student's major department for the specified degree.
Extramural registration does not count toward residence credit in the following circumstances:
1. Coursework transferred from another institution;
2. Correspondence courses.
H. Extramural Fees and Privileges
Students registered for extramural courses for graduate residence credit must apply for admission to regular status (see "Section I.G") and pay established fees. (See "Section X.L.K." for special fees applicable to postcomprehensive registration, which should not be confused with extramural registration for residence credit.)
1. Correspondence Courses
Correspondence study credits do not count as residence credits. Graduate correspondence study credit earned prior to a student's acceptance as a degree candidate at the University of Iowa may be counted toward an advanced degree upon the approval of the appropriate college or department. Not more than nine semester hours of graduate correspondence work can be accepted for credit for an advanced degree. Such credit must be acceptable for the student's Plan of Study and must be earned after the student has attained graduate status. A student enrolled for residence credit may not register for correspondence courses without the approval of the executive of his or her major department and of the Graduate College dean.
J. System of Course Numbers
Courses primarily for graduate students are numbered 200 or above in each department. Courses open to and carrying credits for graduate and undergraduate students are numbered from 100 to 199. Courses below 100 are not accepted for graduate credit.
K. Auditing of Courses
In special cases, and upon the recommendation of the instructor and the adviser, the dean of the Graduate College may grant permission to graduate students to audit courses for no credit. Auditing is permitted only to a student who is currently registered.
L. Dropping of Courses
All graduate students who drop courses after the deadline date established by the dean of the Graduate College for each session and published by the registrar shall receive the grade of F unless the entire registration is canceled. This regulation may be waived only by the Graduate College dean on the recommendation of the Student Health director or the Student Counseling Service. If a student cancels her or his registration after the deadline date, he or she must obtain permission from the dean of the Graduate College before he or she is permitted to reenroll.

Section III. Traveling Scholar Program
A. Purpose
The program, under the auspices of the Committee on Institutional Cooperation representing 11 universities in the Midwest, enables a doctoral student to take advantage of special resources available on another campus but not available on his or her own campus: special course offerings, research opportunities, unique laboratories, and library collections.
B. Procedure
1. A CIC traveling scholar first must be recommended by his or her own graduate adviser, who will approach an appropriate faculty member at the possible host institution in regard to a visiting arrangement.
2. After approval by the student's adviser and the faculty member at the host institution, graduate dean at both institutions will be fully informed by the adviser and have the power to approve or disapprove.
3. A CIC traveling scholar will be registered at the home university, and fees will be collected and kept by that institution. The student registers 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 contact the office of the Graduate College.
A. Master's, Specialist, Certificate, or other Nondegree Students

A student on regular status shall be placed on probation if, after completing eight semester hours of graduate work, he or her cumulative grade-point average on graduate work done at the University of Iowa falls below 3.00, or after completing eight more semester hours of graduate work at the University, he or her grade-point average remains below 2.50, he or she shall be denied permission to reregister; otherwise, the student shall be restored to good standing.

B. Doctoral Students

A doctoral student on regular status shall be placed on probation if, after completing eight hours of graduate work at the University of Iowa, he or she has a cumulative grade-point average below the required level, the student shall be dropped from the program and denied permission to reregister unless he or she applies and is accepted for another degree or certificate program, if the question of probation is met, the student is restored to good standing.

C. Restriction on Students on Probation

A student on probation shall not be permitted to take comprehensive or final examinations leading to any degree or certificate, nor may the student receive any graduate degree or certificate.

D. Departmental regulations and Dissemination of Information

In addition to the above University-wide requirements, each department may establish further requirements which 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 office, and departments shall make all responsible 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 revise standards for a given program, the new regulations will not apply retroactively to the disadvantage of those already in the program. In addition to notifying students that they are subject to the rules of the Graduate College as set forth in the Manual of Rules and Regulations, any standards established by the department more stringent than the general Graduate College requirements shall be stated. Information shall be provided outlining required courses applicable to the various departmental programs of study, examination procedures and other formal evaluations, departmental policies with regard to awarding and renewing assistantships, time limits on programs of study, departmental policy on promotion policies, departmental grade-point requirements, requirements for changing from one degree program to another within the department, especially from the master's to the doctoral level, departmental probation and dismissal policies and procedures (see "E" following), and such other matters as are appropriate. The nature of the departmental advisory system shall be explained to the incoming students.

E. Academic Progress, Departmental Probation, and Dismissal Procedures

If a student is failing to meet departmental standards, the department shall warn the student of this fact in writing. The notification shall specify in what way the student is failing to meet the standards. The student shall be provided a reasonable amount of time to meet the standards prior to departmental dismissal. If, in its monitoring of a student's progress, conditions such as conditional admission or probation are imposed, the department shall give at the time of its imposition written explanation of the status and its time limits.

A student who will not be permitted to register for the next term shall be notified of this fact in writing with reasons for the action provided. Such dismissal may follow failure to meet conditions of probation, pre-conviction departmental grade-point requirements or other standards, or failure of a regularly scheduled examination or final evaluation. If a student judges the dismissal decision improper, the student has a right to review. 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.2")

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 should request a review by the Graduate College. This review may be conducted by the Graduate College dean alone, or the dean may appoint a Graduate College committee consisting of both student and faculty members to conduct the review and recommend to the dean possible courses of action. The review by the Graduate College is final.

Section V. Credits

A. Transfer of Graduate Credit

Graduate work at other institutions will be entered on the student's permanent record by the registrar and a report of this action will be sent to the student, her or his major department, and the dean of the Graduate College. Credit for these courses toward a departmental degree at Iowa must have the approval of the major department and the dean of the Graduate College.
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 no credit may be assigned.

Section VI. Marking System
A. Marks Carrying Advanced Degree Credit
These are A, B, C, and S—satisfactory.
B. Marks Carrying No Credit for Advanced Degrees
These are D—poor, F—failed, I—incomplete, W—withdrawn without discredit, R—registered, and U—unsatisfactory.
C. Audit
A grade is assigned when a student registered for no 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 works during a session cannot be completed because of illness, accident, or other circumstances beyond the student's control. In registrations for thesis, research, or independent study, the S/U grade may be utilized. (See next paragraph.) E. Students who receive the mark of I must remove that mark within the first session of registration after the closing date of the session for which it is given, or else the grade becomes F, except that students with I's from the spring semester are exempt from completing the course during the succeeding summer session. Specific deadlines for the submission of student work to the faculty and for the faculty's report on I 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 receives credit for the work; U—unsatisfactory means that he or she receives no credit. Neither S nor U is used in computing grade-point averages. At a later date, the instructor may change the S to a letter grade. In addition, departments may ask the Graduate College dean for permission to use grades of S and U as described above for courses which, because of their special or experimental nature, are judged to be more appropriate for such grading. In general, these requests may be granted for no more than one session and must be reviewed by the Graduate Council before being granted for longer periods. The type of grading system to be used in the above cases should always be 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 interdepartmental degree program provided that the instructor of the course and the student's departmental advisor approve the S/U grading. Arrangements for S/U grading in these courses are accomplished by filling a card with appropriate signatures in the Registrar's Office at the time of registration, or to work at the last day of the third week of a semester or the third day of the second week of a summer session. No changes from letter grades to S/U 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 here. However, in certain exceptional instances, departments having several areas of concentrations involving widely differing types of effort may request permission from the Graduate Council to allow students majoring in one area to
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) GRE score or an SAT score above a point to be designated by the Graduate College dean; (d) a satisfactory rate of progress in completing the program for the degree. 2. Preference will be given to candidates for the doctoral degree. 3. Recommendations for graduate scholarships may be made to the Graduate College by the appropriate department executive, director or dean. A graduate scholarship may be awarded whether or not a student holds an assistantship. The amount of scholarship for the academic year may vary, but in no case exceed the comprehensive fee assessed. Scholarships will be credited to the student’s University account.

B. Graduate College Fellowships

Fellowships are awarded by the Graduate College upon recommendation by departments to students with outstanding academic records. Fellowships must be registered as full-time students. The primary purpose of the awards is to permit an advanced student to complete his or her dissertation or creative project and complete the degree. The terms of the award will be established by the Graduate College dean in consultation with the Graduate Council.

C. Faculty Research Assistantships

Faculty research assistantships are awarded to qualified graduate students and serve two purposes: (a) to provide research service to professorial members of the academic staff and (b) 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 II.D.”). Appointments ordinarily are made for the non-month academic year, but appointments may be made for other periods of time by special arrangement. Stipends vary with the qualifications of the appointee and the amount of service rendered. Faculty research assistants appointed by the Graduate College pay their own fees. Graduate appointments beginning in September are usually made by the Graduate College dean upon recommendation of the various departments in March of each year; although applications may be considered at any time. Applications should be made in 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: (a) assistance in the instructional program of the University and (b) the preparation of future college teachers. In order to achieve both aims, scholarship-eligible 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, fellows, and faculty research assistants on the Graduate College budget must be registered as regular students in good standing in order to hold such appointments. Appointments will be terminated when registration and/or student status is terminated. In no instance may an appointment be renewed or extended until renewal is approved by the Graduate College and the director of admissions.

F. Dismissal of Assistants

A uniform policy defining procedures to be followed in the dismissal of assistants has been approved by the Board of Regents. Copies of this policy are available in the office of the Graduate College dean.

G. Research Assistantships 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 a faculty research assistant.

I. Loans

Graduate students requiring financial assistance may apply for loans through 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 traineeships, part-time employment on research programs, or part-time teaching. Inquiries should be addressed directly to the major department.

Section VIII. Advanced Programs Offered in the Graduate College

The subject areas in which the Graduate College offers degree programs are listed under “Advanced Degree Programs” in the front of 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 the degree not later than 10 weeks after the start of the semester or one 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 above date will result in
postponement of graduation to a subsequent session.

9. Enrollment in Final Session
The student must be enrolled during the session in which the degree is to be conferred, except as noted in the following paragraph. Students who must register for the session in which the degree is to be conferred but are away from the University campus during that session may meet that requirement by registering for independent study, research, or thesis according to the practice in the various departments. Doctoral candidates who have completed all work except the final examination may register for the postcomprehensive registration described in "Section XIX. K." if such registration is appropriate. Master's candidates who have completed all work except the final examination may register for 0:00:01 Master's Final Registration at a fee equivalent to the "postcomprehensive registration." If such registration is appropriate, registration in a correspondence course will not satisfy this requirement.

Students completing all requirements (including the final examination and thesis deposit) for a graduate degree while enrolled in the Independent Study Session may receive their degrees in the following semester without additional registration.

Section X. Master's Degrees
A. Kinds of Degrees
Master's programs requiring a minimum of 30 semester hours lead to the Master of Arts degree, Master of Science degree, Master of Business Administration degree, Master of Arts in Teaching degree, and each 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 W.D. Departmental Regulations and 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 major department, may include related subjects from other departments.

D. Residence Requirement
Of 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 the Graduate College, various forms of extramural registration may qualify toward fulfillment of this 24-hour residence requirement (see "Section X. E. Extramural Registration") in addition to regular in-campus registration. However, at least 8 semester hours on campus are required, except for those departmental programs which ensure sufficient interaction between the students and the graduate faculty and have received approval from the Graduate 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 Law, Medical, or Dental Courses
Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled as a candidate for a professional degree may be counted on a graduate program of study leading to a master's degree, provided such courses were taken after the student had earned a bachelor's degree. The work accepted from the professional college must be directly related to the student's major field of study in the Graduate College and be approved as a part of the plan of study by the student's adviser and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will be counted as part of the residence requirement for nondothelial 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 30 semester hours of graduate credit.

H. Master's Degree with Thesis
Not more than eight semester hours of credit for thesis preparation shall be counted in satisfying the 30-hour minimum requirement. This thesis may be a scholarly study or an artistic production.

I. Master's Degree without Thesis
A master's degree without thesis, consisting of at least 30 semester hours of graduate study, may be awarded upon the completion of a curriculum prescribed by a department and approved by the Graduate Council.

J. Final Examination
The requirements for all master's degrees include a final examination, which, at the discretion of the major department, may be written or oral or both. Such an examination will not duplicate course examinations. It will be evaluated by a committee consisting of at least three members making the committee report satisfactory. The report of the final examination is due in
the Graduate College not later than 48 hours after the date of the examination. If the examining committee so recommends a candidate who fails the examination may present himself or herself for reexamination, but not sooner than the following session. The examination may be repeated only once.

Upon recommendation of a department, the comprehensive examination for the Ph.D. degree may be substituted for the master's examination.

K. Examining Committee

The examining committee for the master's degree consists of at least three members of the graduate faculty, appointed by the Graduate College dean upon recommendation of the major department or program; 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, and literature. It is designed for students preparing themselves professionally in such fields as painting, design, mural decoration, sculpture, printmaking, acting, producing, stage craft, musical performance, composition, instrumentation, poetry, fiction, and translation. Central to the 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 requires at least two years of residence credit at a graduate college. This requires a minimum of 45 semester hours of graduate credit, at least 24 of which must be for residence credit at this University. A Master of Fine Arts degree may be earned while the student is working toward the Master of Fine Arts degree, but the student must meet all requirements for each degree separately, with a minimum combined total of 80 semester hours of graduate credit.

For other requirements see "Section X.B. Plans of Study"; "C. Major and Related Fields"; "E. Reduction of Old Credits"; "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, 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 the University, of which 15 semester hours must be earned while the student is on campus within one 12-month period 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 electives. Four semester hours of research culminate in a written report.

Courses successfully completed 10 or more years prior to the final examination will be evaluated by the major department in determining the amount of credit that shall be allowed for such work. Evaluation of such old credits will be reported to the Graduate College by the departmental executive at the time of submission of the plan of study.

Other requirements and regulations applicable to the educational specialist degree are the same as prescribed for the one-year master's degree in "Section X.B. Plans of Study"; "C. Major and Related Fields"; "F. Limit on Law, Medical, or Dental Courses"; "H. Master's Degree with Thesis"; and "K. Examining Committee."

A master's degree may be earned while the student is 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 80 semester hours in graduate social work, including a research requirement; and

3. A final comprehensive examination, written or oral or both, covering all work for the degree.

The requirement of 80 semester hours may be interpreted so that a student who can satisfy the faculty of the school that he or she has accomplished, in the junior or senior undergraduate years, the clear equivalent of part or parts of the graduate curriculum in social work, may be permitted, upon recommendation of the school, to qualify for the M.S.W. degree in less than 80 semester hours. In no case may a student quality for the degree on less than 40 credit hours in graduate social work study. 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, classwork is combined with field practice in social agencies or social work departments. Since classwork and field practice are arranged sequentially, students can enter the School of Social Work only in August.

For other requirements, see "Section X.B. Plan of Study"; "E. Reduction of Old Credits"; "F. Limit on Law, Medical, or Dental Courses"; "H. Master's Degree with Thesis"; and "K. Examining Committee."

Section XII. Doctor's Degrees

A. Ph.D. Degree

The University 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 excellence in performance and pedagogy.

B. Prerequisites

The candidate must present evidence of having completed a satisfactory amount of undergraduate work in the subject proposed for investigation or, in the case of deficiency, must register for prerequisite courses.

C. Residence Requirement

The doctorate is granted primarily on the basis of achievement rather than on the accumulation of semester hours of credit; however, the candidate is expected to have completed at least three years of residence in a graduate college. At least part of this residence must be spent in full-time involvement in one's discipline, at this University, beyond the first 24 semester hours of graduate work; this requirement can be met either by: (1) enrollment as a full-time student (9 semester hours in each of two semesters or 18 enrollment in a minimum of 6 semester hours in each of these semesters during which the student holds at least a one-third-time assistantship certified by the department as contributing to the student's desired excellence in the program. For purposes of record and assessment of fees, student registration should reflect accurately the amount and kind of work undertaken in the Graduate College. All doctoral programs, including acceptable transfer credit, will contain a minimum of 72 semester hours of graduate work.

D. Plan of Study

The development of a plan of study at the doctoral level is the special responsibility of the student working together with his or her adviser. A formal plan of study must accompany the departmental request to the Graduate College for permission to conduct the comprehensive examination. The plan will provide a listing of all graduate courses taken which apply toward the degree and a listing of courses in progress or to be completed after the comprehensive examination.

E. Ad Hoc Interdisciplinary Programs

A student may prepare a proposal for an interdisciplinary course of study, including the plan for the comprehensive examination, under the sponsorship of at least three faculty members and the department 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

Work taken by a student in the colleges of Dentistry, Law, or Medicine while enrolled for a professional degree may be credited toward a graduate program leading to a doctoral degree if it is taken after the student has earned a bachelor's degree. 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 adviser and the major department. Work completed while registered for a professional degree in law, medicine, or dentistry will not be counted as part of 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

Students who expect to continue their training through the doctoral degree may file a joint program for the master's and doctor's degrees. The master's examination may be combined with the comprehensive 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 department and approval of the Graduate College dean, students who are well qualified by previous training may submit a plan of study that leads directly to the doctoral degree without earning the master's degree as an intervening part.

I. Requirement in Foreign Languages

There is no general Graduate College requirement in foreign languages. Those departments which require competence in one or more foreign languages establish standards as to the extent and level of competence, as well as methods of testing. Specific requirements will be found in the departmental statements of standards and procedures (see "Section IV.D."). Departmental executive officers are responsible for reporting completion of requirements to the registrar for entering on the student's record. Specifications of departmental requirements in foreign languages are filed in the Graduate College office and may be changed upon the initiative of the department.

J. Written Examination

The candidate must pass a comprehensive examination, consisting of written or oral parts or both, as determined by the chair of the major department. Administration of the comprehensive examination is given 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 University at the time of the comprehensive examination, which must be passed not later than the session prior to the session of graduation. This examination, administrated only on campus, is intended to be an inclusive evaluation of the candidate's mastery of the major and related fields of study, including the total student's work 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 his or her subject at or near the end of his or her formal preparation.
and prior to the completion of the
dissertation. The comprehensive
examination and the final examination,
which is concerned chiefly with defense
of the thesis and related subjects, are
the two principal examinations for
the doctoral degree.

The comprehensive examination will
be evaluated by a convened meeting of
the committee and reported as satisfactory,
satisfactory with reservations, or
unsatisfactory to the Graduate College
office within 14 days after
the completion of the examination. Two
"unsatisfactory" votes will make the
committee report unsatisfactory.

In the event of a report with two or more
votes of "satisfactory with
reservations," the exact stipulations of
the committee should be recorded in
the report form. If the stipulations involve
further examination in a particular area
of study, the statement should be
specific in defining the area, in requiring
additional courses or other procedures,
and in specifying the time and method of
attaining the stipulation. The candidate
will not be admitted to the final oral
examination until such stipulations have
been satisfied. The executive of the
major department should promptly send
a written report to the Graduate College
giving date of removal of "reservations.

In case of a report of unsatisfactory on
a comprehensive examination, the
committee may grant the candidate
permission to present himself or herself
for reexamination no 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, he or she may not be
recommended to candidacy until he or she
has submitted an application which has
been approved by his or her advisor, the
departmental executive, and the
Graduate College dean.

All registrations should accurately
reflect the amount and type of work
undertaken, the use of University
facilities, and any affiliation 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 Post Ph.D. Comprehensive
Registration and paying a special
minimum tuition 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 meeting significant
requirements or University facilities
(except library privileges) or partaking of
consultation within the faculty. It is
understood that no registration for a
summer session is required when the
student makes no use of University
facilities, unless the student is taking a
degree at the end of that session.

L. Dissertation for the Doctoral
Degree

A copy of the dissertation must be
presented at the offices of the Graduate
College not later than four weeks before
the graduation date at which the degree
is to be conferred and two copies
deposited there in final form 10 days
before graduation.

Regulations regarding preparation of the
dissertation copy shall be promulgated
by the dean of the Graduate College.
Dissertations will be microfilmed and
then made available on a permanent
basis. An abstract of the dissertation,
not to exceed 600 words of text, is to
be deposited with the dissertation.
The abstract must be approved and signed
by the dissertation advisor. The
abstract is published in the Journal of
Dissertation Abstracts International. One
copy of the dissertation is bound and indexing at
the University Library.

If the dissertation is in a nonprint
medium (e.g., painting, statue, performance
in music) the librarian in charge of
theses will help the student and faculty
advisor work out an appropriate method
of preparing the accompanying
manuscript. If such help is needed. Once
the manuscript is accepted, it is treated
the same as any other.

Written dissertations shall be made
available to all members of the
examination committee not later than two
weeks before the date of the
examination.

M. Dissertation Fee

A nonrefundable dissertation fee is
charged each candidate to cover the
cost of the above processing of 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:
(1) a critical inquiry into the
purposes, methods and results of the
investigation—not a mere recapitulation of
the procedures followed; (2) intensive
questioning on areas of knowledge
constituting the immediate context of
the investigation.

The final examination may not be held
until the next session after the student
shall pass the comprehensive examination
nor until the first check of the
dissertation by the Graduate College;
however, a student must take the final
examination no later than five years
after passing the comprehensive
examination. Failure to meet this
deadline will result in a reexamination of
the student to determine his or her
qualification for taking the final
examination. The procedures to be
followed are the same as those for the
comprehensive examination. (See "KJ-J.
Comprehensive Examination."

Final examinations for the doctors are
open to the public. Members of the faculty
of the Graduate College are especially
invited to attend and, subject to the approval of the chair, to participate in the
examination.

The report of the final examination is
due in the Graduate College office not
later than 48 hours after the date of the
examination. The final examination will
be evaluated by a committee of three
unsatisfactory. Two unsatisfactory votes
will make the committee report
unsatisfactory. In case of a report of
unsatisfactory in the final examination,
the candidate may not present himself
or herself for examination until the
next session. The examination may be
repeated only once, at the option of the
major department.
O. Examining Committees

The comprehensive and final examinations are conducted by committees of no fewer than five members of the graduate faculty appointed by the Graduate College dean upon recommendation of the major department, except that departments may request the dean's permission to replace one of the five members of the graduate faculty by a recognized scholar of 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 department is included in the comprehensive examination. For the final examination one member of the committee must be a member of the graduate faculty from outside the major department.

Upon recommendation of the major department, the Graduate College dean may appoint additional qualified persons (not necessarily members of the graduate faculty) to serve as voting members of the examining committee. 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>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<td>Final Ph.D. Comprehensive Exam</td>
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<tr>
<td>055010</td>
<td>Master's Final Examination</td>
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<td>055000</td>
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College of Law

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. Though familiarity with the substance of legal principles and with the operation of legal institutions are important components, the University of Iowa program places an equal emphasis on the development of fundamental lawyers' skills and an appreciation of the roles of law and lawyers in society. A unifying feature of the program is the conviction that these objectives can be achieved best by an educational program that cultivates active, self-directed 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.

The University of Iowa College of Law confers 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 coursework, take and complete all required courses, achieve a cumulative weighted average of 65, and satisfy the college's five-unit research and writing requirement.

Program of Study

Full-Time Policy

The faculty believes that students receive a better legal education when they are devoting substantially all of their time to educational pursuits. For this reason, students are expected to pursue their 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 12 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 in the "accelerated" program, they can graduate nine months earlier than would otherwise be possible by attending summer school in each subsequent summer. Thus, the accelerated student who begins law school in the summer of 1980 may graduate in August 1982. Students who begin school in the accelerated program, however, need not continue to accelerate their graduation.

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 a fewer hours without permission of the dean. No student may take more than 16 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 each, during which six to eight upperclassmen and three to four first-year students may register. Nonaccelerated students may enroll either in one or both periods. Accelerated students attend the entire 11-week session.

First-Year Small-Section Program

The small-section program for first-year students integrates legal research and writing instruction into a substantive course taught by regular, full-time faculty. The program's purpose is to encourage student participation in class discussion, and to provide additional opportunities for student-faculty interaction.

In the fall semester (or summer for accelerated students), the entering class is divided into sections of approximately 35 students. In the spring (or fall for accelerated students), each section contains approximately 15 students. The subject matter of the small-section courses varies from year to year and is included virtually every course in the first-year curriculum.

In the small-section course, students are given a series of assignments, each with a different educational objective. Faculty members provide extensive critiques of students' papers and discuss the assigned problem 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 coursework 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, and in litigation. Few courses are required in the second and third years, but all students must take 91:365 Torts A or 91:365 Torts B, and 91:210 Appellate Advocacy I is the second year, and before graduating all must take 91:252 Constitutional Law II and an upper-class small section course. The latter requirement assures students the opportunity to enroll in a small class (casually 30 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 student earns two of the credits automatically by satisfactory completion of 91:210 Appellate Advocacy I and the upper-class small-section course. He or she can earn the remaining three credits through any combination of courses and activities that carry writing credits, including seminar papers, independent research papers, Law Review, Journal of Corporation Law, 91:140-411 Client Counseling II, 91:125 Court Board, and 91:231 Appellate Advocacy II.

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 first-year students an opportunity to apply their new knowledge to real cases under the supervision of faculty members and other attorneys.

Students in the Legal Aid Clinic represent indigent clients in several eastern Iowa counties in a wide range of civil and criminal cases. Students in the Prisoner Assistance Clinic represent inmates in Iowa correctional institutions in both habeas corpus and civil cases. Both Legal Aid and Prisoner Assistance interns participate fully in interviewing, fact investigation, negotiation, and courtroom proceedings.

Students in the Clerkship Program act as law clerks to trial court judges. As such, they observe court proceedings and draft orders, opinions, and jury instructions.

Finally, students in the Legislative Internship Program are assigned to work as legal assistants to state legislators 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 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 in 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 hour 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, Communication Science, Counseling Education, Economics, Education, Educational Administration, English, Finance, Journalism, History, 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 U.S. Department of Army Military Science.

For Information about programs leading to a commission in the United States Air Force, write to the U.S. Department of Aerospace Military Studies.
Student Life
There are currently eleven student organizations at the college: three co-curricular programs, each managed by students, offer specific skills training; and two student-produced scholarly journals.

The college operates a placement office to assist students and alumni in securing suitable summer and/or permanent employment.

Financial Aid
A comprehensive financial aid program at the college attempts to assist all students who need funds in order to permit them to attend school full-time. However, since financial aid funds are inadequate to cover the full cost of a legal education for even needy students, applicants and their families are expected to make a maximum effort to provide a reasonable portion of the students' expenses. Applicants are urged to contact the financial aid office at the college for further information about types of aid available.

Admission Requirements
Applicants for admission must present a baccalaureate degree from an approved college or university prior to commencing work in the College of Law. The services which the graduate of the College of Law may be called upon to perform are so varied and the possible fields of endeavor so broad and diverse that the college prescribes no uniform undergraduate program for those planning to enter law school. With the assistance of faculty advisers, each student should develop an undergraduate program which explores and develops that student's particular intellectual interests. There are three basic objectives, however: (1) commanded by a committee of the Association of American Law Schools which everyone thinking of law school should keep in mind in planning an undergraduate course of study; education for comprehension and expression in words; education for greater understanding of human institutions and values; and education for greater power in thinking. That committee strongly emphasized that undergraduate education of students for a full life through liberal education is far more important than education directed too pointedly toward later professional training and practice. Students are urged not to sacrifice the broader perspective for detailed specialization.

Application Procedures
Applications may be obtained by writing to: Director of Admissions, College of Law, The University of Iowa, Iowa City, Iowa 52242. A student must file his or her application for admission by March 1 preceding the summer or fall semester in which he or she wishes to enter. Applications should be sent to the Director of Admissions, Calvin Hall, The University of Iowa. An evaluation fee of $10 must accompany each application unless the applicant's baccalaureate degree was/is to be conferred by The University of Iowa. This fee is nonrefundable except for residents of Iowa who are denied admission. Students from disadvantaged backgrounds who cannot afford this fee should apply for its waiver.

The applicant is responsible for submitting an official transcript from each college or university he or she has attended to the Law School Data Assembly Service (LSAC), Box 2000, Newtown, PA 18940. The College of Law must receive the applicant's LSAC report prior to the March 1 deadline for submission of applications.

In your LSAC registration packet, you will find Law School Application Matching Form. To preserve your rights to privacy, ETS has agreed not to release your LSAC report to any school that does not furnish ETS your Law School Application Matching Form. The University of Iowa cannot process your application without your Law School Application Matching Form. Therefore, please attach or enclose the form with your application. If you do not, the processing of your application will be delayed until the form is received.

Low School Admission Test
Each applicant for admission must take the Law School Admission Test (LSAT) administered by the Educational Testing Service and the Law School Admission Service, 800 Boylston Street, Suite 1900, Newton, MA 02160, and have his or her test score forwarded to the College of Law, along with the LSAC report. The test is given several times each year and may be taken at numerous 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 first-year class is the test given in February. However, if the test is taken in February, it may put the applicant at a competitive disadvantage since it takes at least four weeks for the college to receive the results. February testers must have their applications on file with The University of Iowa prior to the March 1 deadline. Foreign student applicants 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 08540.

Deposit
Applicants accepted prior to April 1 are required to make an advance nonrefundable deposit of $50 by April 1. Applicants accepted subsequent 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...
91431 Economic Incentives of Business
91522 Exemptions and Tax
91620 Free Speech
91438 Education Law Seminar
91540 Energy Policy Issues Seminar
91643 Environmental Law Seminar
91643 International Economic Relations Seminar
91644 International Transactions
91645 Problems in International Law and Policy
91646 Problems in International Justice Seminar
91647 Policy-Oriented Jurisdiction Seminar
11532 Land Use Planning Seminar
91648 Legal History
91648 American Legal History Seminar
91649 Partnership Planning
91649 Law in Literature
91640 The Police
91645 Selected Problems in Public Employment Law
91655 Problems in Public Law
91653 Public Employee Collective Bargaining
91657 Sex Roles in Law and Society Seminar
91682 Native American Law Seminar
91684 United States Supreme Court
The College of Medicine, as an integral part of the University, contributes to the educational programs of several thousand students, not only those in the health colleges of Dentistry, Medicine, Nursing, and Pharmacy but also in the life sciences areas of 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 as the only college in Iowa offering 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's assistants, medical technologists, physical therapists, and nuclear medicine technologists. The medical and associated medical science students have several opportunities to gain first-hand 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 promotes and sponsors experimental programs that demonstrate methods of organizing health services at the local level. Accredited by 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 administered by the College of Medicine are accredited by their respective accrediting bodies.

Faculty

Nearly all College of Medicine faculty members are full-time, their work in practice and research being part 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 the Master of Science degree are offered in ophthalmology, dermatology, 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 in nursing 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.

Interdisciplinary Programs and Centers

Interdisciplinary programs and centers have been developed that draw strength from the faculty of the college and the facilities available to them, without regard to their departmental units or to the separation of graduate and postgraduate training. Notable among these are the interdisciplinary programs in endocrinology, neurobiology, and immunology, in which degrees are not offered but in which the student can place emphasis by appropriate selection of a study program. Further information can be obtained from the associate dean for academic affairs.

The following centers are subdivisions of the College of Medicine:

Clinical Research Center

The Clinical Research Center provides the setting for patient-related research of disease processes. Studies of normal human physiology, biochemistry, and pathology are also conducted. It is an important resource of the college, fully financed by federal monies, enabling all faculty members to conduct carefully supervised studies that cannot be accomplished with equal precision with existing beds of the affiliated hospitals.

Cardiovascular Research Center

The Cardiovascular Research Center coordinates the research and training programs related to cardiovascular diseases and encompasses the following federally funded programs: the Regulation of the Peripheral Circulation, the Specialized Center of Research in Atherosclerosis, the Lipid Research Clinic, three training programs and a coordinated program of other interdisciplinary research supported by a number of individual project grants. Gifts from private donors have underwritten construction of two floors of cardiovascular research laboratories on top of the Medical Research Center.

Toxicology Center

The Iowa Center for Toxicology and Biochemical Pharmacology is an integral part of the Department of Pharmacology. In broad terms, the research is directed to the disposition of drugs and poisons, their metabolic fate, the biological adaptation to drugs, and studies of the acute action at the molecular and cellular levels.

Diabetes Center

The Diabetes Center coordinates research and training programs related to diabetes and associated endocrinological diseases. It was established in 1979 with support from the Institute of Arthritis, Metabolism and Digestive Diseases.

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 centered in the Division of Child Psychiatry.

Concert Center

A Cancer Center was established in 1980 to coordinate the efforts of the faculty and staff of the University in research, education, and demonstration programs related to all aspects of cancer.

Educational and Patient Care Facilities

Classes are taught in the basic sciences and Medical Laboratories buildings. A new Health Sciences Library is at the core of the medical campus. Students acquire clinical experience in the 1,063-bed University Hospitals and Clinics complex, in the adjacent 333-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 355-member clinical staff for University Hospitals and Clinics, whose 75 clinical services are directed by the heads of the corresponding academic departments in those colleges. These faculty members also provide instruction for the 500-plus resident physicians and dentists who comprise the house staff of University Hospitals and Clinics, which provide facilities for teaching all major medical specialties, for residencies in all such specialties, and for fellowships in a number of subspecialties.

University Hospitals and Clinics serves as a tertiary care center for the state of Iowa and portions of adjoining states, with most patients being referred for care and treatment not readily available in their home communities. For details about 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 the research and teaching endeavors of the faculty of the College of Medicine. The animal care facility arranges for the purchase, maintenance, and record-keeping of a wide variety of animals.
The biomechanics facility provides specialized electronic design, construction, and repair services. The learning resource unit is composed of educators and media specialists who serve the faculty, staff, and administration. The unit provides educational consultation, initiatives and cooperative education research endeavors, and conducts teacher education activities. The medical instrument facility designs and fabricates scientific equipment, providing precision machine services. The medical graphics, photography, and television sections offer consultation, design, and production services in these various art forms. The spectrum of composition is greatly expanded by Genographics, 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 biohazardous human or animal pathogens. Studies on prion structures are conducted in a facility containing ultracentrifugation, amino acid analyzers, and protein sequencer equipment.

**Doctor of Medicine**

The University of Iowa College of Medicine accepts 175 freshman students each year into its four-year course of study leading to the degree, Doctor of Medicine (M.D.).

The curriculum in medicine at The University of Iowa is based on a strong tradition of excellence. It is evaluated and revised 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**

62:183 Biochemistry for Medical Students is centered around a series of clinical situations. The language of the discipline is presented as the context of problems the physician will meet. In the small group discussions that follow the clinical series, the student learns to use various problem-solving approaches.

62:103 Gross Human Anatomy for Medical Students includes embryology, clinically relevant areas of anatomy pathology, and the anatomy with clinical correlations. A complete dissection of the human body is undertaken, and the relationships to the living system is stressed.

62:105 General Histology provides a course of study for the core information concerning cellular and tissue structure and function needed for the work to be accomplished in physiology and pathology.

115:102 Human Dimensions in Medicine is designed to introduce medical students to the importance of communication in the practice of medicine. The course provides students with laboratory experience through which they learn about and improve their ability to communicate sensitively with patients and colleagues.

63:110 Biostatistics completes the work of the semester. It utilizes a self-paced study of statistical principles and their application to the biological and medical sciences.

**Second Semester**

72:212 Medical Physiology (including endocrinology) offers the student an understanding of the mechanisms an organism gives to external stimuli and provides a basis for understanding the integrated function of organ systems. Most of the material in these two courses is presented from a clinical point of view. In small discussion groups, which have essentially replaced laboratory exercises, the students present their evaluations of the physiologic mechanisms at work in the clinical material. Some demonstrations are used to good advantage.

61:103 Medical Microbiology includes immunology and presents a core of information on the classification and mode of action of infectious agents, as well as certain aspects of body response to these agents. Laboratory work continues to play an important role in this course.

**Third Semester**

62:202 Systemic Pathology for Medical Students, in which the principles given in the previous semester are expanded upon in an organ approach. Student-centered learning is fostered by discussion groups and practice in case analysis.

60:110 Medical Neuronanatomy presents the structure of the nervous system. Much of the material is available for self-study and small-group study in seminars.

63:109 Community Health presents fundamentals to help prepare the student in some of the sociologic, economic, and public health aspects of medical service.

7:128 Pharnacy for Health Sciences: Medical bridges the clinical and basic science and provides the students with principles that must be understood to describe properly the actions of drugs to the patient.

Several elective courses are available to students during the third semester. These courses carry 3 or 4 semester hours of credit. Topics include areas not specifically covered in the regular curriculum and areas related to medical practice and the role of the physician.

Typical examples are "Perspectives in Aging," "Humanistic Medicine," "Human Nutrition," and "Spanish for Health Professionals."

**Introduction to Clinical Medicine**

A major interdisciplinary course, 50:111 Introduction to Clinical Medicine, fills the fourth semester. It includes participation by a large proportion of the faculty and
is vital in providing a student with the tools for a lifetime of patient care. The first series of mornings is devoted to introducing the patient as a person with giving guidance in interviewing, counseling, and history-taking. Following this is an in-depth review of clinical medicine on an organ system basis, given by teams of clinicians and basic scientists. The final group of mornings is spent in areas of medicine which do not naturally fall into organ systems and on re-emphasis of some key subjects.

Throughout the 10 weeks of this course, students spend afternoons acquiring and practicing the skills of the clinician in history-taking and physical examination. Habits of care, concern, and compassion needed by all physicians are established in this semester. Toward the end of the semester, each student is evaluated individually several times to determine the level of skill achieved. If further work is needed, guidance and assistance are provided.

Clinical Clerkships

The third year includes the required clinical clerkships and presents a student with opportunities to work with physicians of almost all disciplines as they care for their patients. Students spend the weeks in Internal Medicine; six weeks each in Surgery, Pediatrics and Obstetrics and Gynecology; and two weeks in each of the following specialties: Anesthesiology, Cardiology, Neurology, Otolaryngology, Orthopedics, Radiology, and Family Practice. Students spend most of this time in Iowa City.

The clinical clerkships year is the most critical period of the time in medical education, for it 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

Following the clerkships, the fourth year provides a period of selective study, giving the student many options. The broad, comprehensive orientation to the different medical disciplines and the level of clinical sophistication achieved during the clerkship year qualify the student to participate in a variety of advanced courses in specialty areas to community-based clerkships in primary care.

Financial Aid

The College of Medicine provides financial assistance on the basis of demonstrated financial need. Most aid is in the form of loans from the United States Public Health Service Health Professions Student Loan Program, the Federally Insured Student Loan Program, or the college's Medical Education Assistance Program.

A limited number of scholarship grants are awarded each year to students who demonstrate exceptional need. These scholarships vary in value from $500 to $1,500.

Small short-term emergency loans may be obtained through the college.

Information and counseling 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 underrepresented in American medicine.

Admission to the M.D. Program

The College of Medicine participates in the American Medical College Application Service (AMCAS), a nonprofit centralized application processing service for applicants to U.S. medical schools. Preliminary applications are processed by AMCAS beginning June 15 of the year preceding the beginning of the class for which admission 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 application has a review conducted by the College of Medicine. A $10 fee must accompany the final application from applicants who have not completed work in residence at The University of Iowa. This fee is not refundable except to residents of Iowa who are denied admission.

Each applicant must 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;
- Completed three years of a curriculum qualifying him or her to receive the baccalaureate degree after completing the first year in medicine;
- Completed three years of a baccalaureate program meeting the general graduation requirements of the college he or she is attending.

Prospective students must have earned at least 64 semester hours of credit, or the equivalent, including:

- Physics: a complete introductory course;
- Mathematics: college algebra and trigonometry, or advanced college mathematics for applicants who completed college algebra and trigonometry in high school;
- Chemistry: a minimum, a complete introductory course in general 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 laboratories.

Fulfillment of the specific requirements for admission does not ensure admission to the College of Medicine. From the applicants meeting the requirements, the admissions committee of the College of
sodium. The sodium appears to be best qualified for the study and practice of medicine.

Students who have completed the baccalaureate degree and are required courses five or more years before seeking admission to the College of Medicine are considered by the admissions committee only under exceptional
circumstances. To be considered for admission, an applicant must have attained a grade point average of at least 2.5 (A=4) for all college work undertaken. Because the quality of work in premedical science is basic to success in medicine, the admissions committee gives special attention to grades in science and in the level of difficulty of the program undertaken. Where courses are on a graded or pass/fail basis, it is expected that applicants will take the required science courses on a graded basis. Preference is given to applicants with high scholastic attainments in the sciences. Students in nonmajors are considered under the Denison Plan. Under this plan, the prospective student submits a single application to his or her first choice of schools by August 1 of the year preceding the one for which the applicant is seeking admission, and the decision is made by October 1.

Applicants are required to take the New Medical College Admissions Test administered by the Association of American Medical Colleges in the spring or fall of the year preceding for which they are seeking admission. Students may make arrangements to apply for this examination through the University's evaluation and examination services.

Personal interviews are not usually conducted but are occasionally requested by the admissions committee. Applicants who feel that an interview is necessary may request that an interview be arranged by contacting the coordinator of admissions. Requests for interviews should normally be made before January 1. The specific purpose of the interview should be clearly stated.

Applicants accepted on or prior to February 15 must submit a $50 advance payment by March 1. Applicants accepted after February 15 must submit this payment within two weeks after they receive notification of acceptance. The advance payment is credited toward tuition and fees. All students entering the College of Medicine are required to submit the results of a physical examination. They must also take a tuberculosis skin test and, if it is positive, receive it by chest X-ray. Both the examination and the skin test should be completed during the year prior to enrollment.

Promotion Policies and Procedures

Role of the Promotions Committee

The purpose of the promotions committee is to ensure that each person graduated from The University of Iowa College of Medicine has adequate skills, knowledge, and judgment to assume the responsibilities of a medical doctor. To perform its duties, this committee depends upon the cooperation, advice, and judgment of faculty, students, and administration.

Composition of Promotions Committee

The promotions committee consists of faculty members, plus the associate dean for medical student affairs as ex officio (without vote). Two members must be from two different basic science departments and three from three different clinical departments. The appointments are made by the dean of the College of Medicine after consultation with the executive committee.

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. Continued enrollment of a student who has not satisfactorily completed courses in a grading period may be recommended by the promotions committee, provided that an appropriate tutorial program is designed for the student. Each student must demonstrate proficiency in each required course. Evaluation of student progress in basic science semantics is based on such examinations or other tests as are set by each department or course. Evaluation of student progress in clinical seminars is based on clinical skills and competence, and on such examinations or other tests as are established by each department or course.

Scholastic performance in the two years is evaluated by using the letter grades (A, B, C, and D) in the selective studies segment only, grades P, F, and I will be used. The letter F indicates satisfactory achievement at the passing level. The letter H, signifying "honors," indicates achievement at an exceptionally high level. The letter P indicates work below the passing level. The letter I is issued when for good reason the student has not completed the work of a course.

The promotions committee meets at least three times each year, following the completion of each academic semester and at other times as requested by the associate dean for medical student affairs.

The committee reviews the record of all students who have received a grade of F or I during the two years grading for promotion. The committee reviews the record of any student presented by the course director for the associate dean for medical student affairs as doing continually poor work. The committee considers other business or procedures as deemed necessary to perform its duties as set forth in this charge. The promotions committee recommends actions to be taken in the case of any student whose work is in any way considered unsatisfactory. These recommendations are considered by the medical council and executive committee. If the student is not satisfied with the decision, the student may appeal the decision to the associate dean. In general, the student is not permitted to continue in the medical school; the student must take a regular or an accelerated schedule. Students having uncorrected grades of failure or incomplete will normally be placed on academic probation. Students
Withdrawal from the College
A student may withdraw from the College voluntarily upon written application to the dean's office.

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 not later than four months prior to the requested date of re-enrollment.

The faculty is authorized to refuse continued or further registration to any student if it believes that he or she has not lived up to the expected general fitness requirements for entering the medical profession, the standards for which must be in keeping with principles of medical ethics of the American Medical Association. Ordinarily such action is taken by the medical council and the executive committee meeting in joint session and acting as representatives of the faculty.

Associated Medical Sciences
The Division of Associated Medical Sciences is organized to include the programs for Medical Technology, Nuclear Medical Technology, Physical Therapists, and Physician's Assistants. Admission to these professional programs follows the selection described in the respective sections of this Catalog.

Unclassified Students
Persons who do not wish to be admitted to the College of Medicine but wish to register for certain courses will be admitted only upon complying with all the usual requirements for admission to such a course, or by action of the faculty upon recommendation of the professor in charge of the course.

Nondepartmental Courses

30.1 Medicine Obstetrics Fourth Year
30.2 Medicine Obstetrics Third Year
30.3 Nutrition
30.4 Medicine in the Humanities
30.13 Preventive
30.15 Law and Medicine for Physician's Assistant Students
30.51 Introduction to Clinical Medicine
30.151 Laboratory methods in chemical pathology
30.152 Laboratory methods in physical pathology
30.153 Laboratory methods in bacteriology
30.154 Laboratory methods in physical chemistry
30.155 Laboratory methods in medical microbiology
30.156 Laboratory methods in medical electronics
30.157 Laboratory methods in medical physics
30.158 Laboratory methods in medical statistics
30.159 Laboratory methods in medical chemistry
30.160 Laboratory methods in medical ethics
30.161 Laboratory methods in medical psychology
30.162 Laboratory methods in medical sociology
30.163 Laboratory methods in medical economics
30.164 Laboratory methods in medical administration
30.165 Laboratory methods in medical education
30.166 Laboratory methods in medical research
30.167 Laboratory methods in medical statistics
30.168 Laboratory methods in medical psychology
30.169 Laboratory methods in medical sociology
30.170 Laboratory methods in medical economics
30.171 Laboratory methods in medical administration
30.172 Laboratory methods in medical education
30.173 Laboratory methods in medical research
30.174 Laboratory methods in medical statistics
30.175 Laboratory methods in medical psychology
30.176 Laboratory methods in medical sociology
30.177 Laboratory methods in medical economics
30.178 Laboratory methods in medical administration
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30.180 Laboratory methods in medical research
30.181 Laboratory methods in medical statistics
30.182 Laboratory methods in medical psychology
30.183 Laboratory methods in medical sociology
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30.190 Laboratory methods in medical sociology
30.191 Laboratory methods in medical economics
30.192 Laboratory methods in medical administration
30.193 Laboratory methods in medical education
30.194 Laboratory methods in medical research
30.195 Laboratory methods in medical statistics
30.196 Laboratory methods in medical psychology
30.197 Laboratory methods in medical sociology
30.198 Laboratory methods in medical economics
30.199 Laboratory methods in medical administration
30.200 Laboratory methods in medical education
30.201 Laboratory methods in medical research
30.202 Laboratory methods in medical statistics
30.203 Laboratory methods in medical psychology
30.204 Laboratory methods in medical sociology
30.205 Laboratory methods in medical economics
30.206 Laboratory methods in medical administration
30.207 Laboratory methods in medical education
30.208 Laboratory methods in medical research
30.209 Laboratory methods in medical statistics
30.210 Laboratory methods in medical psychology
30.211 Laboratory methods in medical sociology
30.212 Laboratory methods in medical economics
30.213 Laboratory methods in medical administration
30.214 Laboratory methods in medical education
30.215 Laboratory methods in medical research
30.216 Laboratory methods in medical statistics
30.217 Laboratory methods in medical psychology
30.218 Laboratory methods in medical sociology
30.219 Laboratory methods in medical economics
30.220 Laboratory methods in medical administration

Relationship to Course Directors Committees
The course directors committees will provide guidance and counseling for students and will be a resource for and provide advice to the promotions committee.

Appeals
Students desiring to appeal promotions decisions must submit such appeals in writing to the dean of the College of Medicine within two weeks after the date of written receipt of the decisions. All appeals are heard and decisions rendered by the medical council and executive committee meeting in joint session. Students may request an opportunity to appear personally before the joint session to make a statement and to answer questions.

Leave of Absence
The College of Medicine believes that certain students may profitably be granted a leave of absence from the college for specified periods of time. A leave of absence should be requested from the dean's office. It will be granted at the discretion of the dean. Any student who is absent without leave for a major section of a clinical clerkship may receive, at the discretion of the department, a grade of F.
Anatomy

Doctor of Philosophy

There are excellent teaching and research opportunities in medical colleges for persons with doctorates in anatomy.

All students in the Ph.D. program work directly for the doctorate without an intermediate master's program. They acquire in-depth knowledge of gross anatomy, microscopic anatomy, and neuroanatomy by taking courses and teaching in the laboratory sections under faculty supervision. Students ordinarily require four years of full-time study to complete the doctorate in anatomy.

During the first year, the student chooses a research area and becomes affiliated with a faculty member whose research is in that area. The department's research strengths currently are in endocrinology and reproduction, neurobiology, and the cardiovascular system. By the end of the second year, the student defines a research problem with his or her major adviser, formulates a research prospectus, and undertakes a comprehensive examination. This examination assesses the student's ability to analyze, organize, and apply the information, concepts, and skills acquired in the first two years of the program. The third and fourth years are devoted heavily to research. During this period, the student may also elect advanced graduate coursework and gain additional teaching experience.

The final examination for the Ph.D. consists of a public oral defense of the dissertation. The dissertation is based on original research conducted with the guidance of the student's faculty adviser and four other faculty members.

Financial Aid

Financial aid is awarded on a competitive basis to students admitted to the Ph.D. program. Applications for aid should be completed by February 1.

Graduate Admission

An applicant for admission to the M.S. or Ph.D. programs in anatomy should have undergraduate preparation including advanced mathematics, one year of organic chemistry, at least two biology courses, and one year of general physics. For admission requirements, see the "Graduate College" section of the Catalog. In addition to taking the Graduate Record Examination (GRE) Aptitude Test, applicants to graduate programs in anatomy are strongly encouraged to take the GRE Biology Advanced Test. This is particularly useful to the admission committee in considering applicants whose undergraduate record may not reflect the individual's full capabilities.

Facilities

The department occupies over 35,000 square feet in the Basic Sciences Building in the health sciences sector of the University campus. These quarters house modern facilities and well-equipped research laboratories. The most modern instrumentation is available, including four high-resolution electron microscopes, Balzer evaporation unit, spectrophotometer, cryostate, an automated gamma counting system, etc. Research is increasingly problem-oriented, rather
Division of Associated Medical Sciences

Anesthesia

Joseph E. Newland, W. C. Stevens

Pharmacology: David D. Abraham, Mohammad Khalil

Surgery: J. A. Johnson, M. K. Berry, E. S. Dyer

Research: M. C. Sternquist, W. C. Stevens

Anesthesiology

The department introduces the second-year medical student to anesthesia as a specialty, hoping to develop in the third-year student some concepts and technical skills related to resuscitation, airway management, and the care of the comatose patient; and offers the fourth-year student more intense study in any and all phases of the department. Divides clinical experience, seminars and teaching conferences, and ongoing research activities develop in the postgraduate student, or resident, the knowledge and skills required of a specialist in anesthesia.

Courses

1104 Clinical Anesthesia 3 a.h.

Required for junior medical students. Clinical patient care in the operating room and recovery room.

1108 Clinical Research 4 a.h.

Selection and practical experience in various forms of research training, surgical preoperative and postoperative care, anesthesia in obstetrics and in pediatrics, in surgical anesthesia and in obstetrics, and in general and regional anesthesia. A summer internship is required for medical students.

1110 Ultrasound 4 a.h.

Evaluation and screening of abnormality by patients in diagnostic care, artificial heart lung, evaluation of systemic disease, normal and abnormal states, cardiac disease and echocardiographic studies. An understanding of the cardiac and cardiovascular system.

1111 Ultrasound Somatotheraphy 0 a.h.

1112 Basic Science Research 0 a.h.

1114 Rapidity and Temperature Control 9 a.h.

Research in a well-defined project relating to anesthetic agents, frequently accepted by students with approval of the department head.

Sophomore Year

First Semester

1113 History of Medicine 4 a.h.

1114 Introduction to Anesthesia 3 a.h.

1115 Principles of Anesthesia 4 a.h.

Total 11 a.h.

Second Semester

1116 History of Medicine 4 a.h.

1117 Principles of Anesthesia 4 a.h.

1118 Principles of Anesthesia 4 a.h.

Total 12 a.h.

Total 23 a.h.

Junior Year

First Semester

1119 Anesthesia in Practice 3 a.h.

1120 History of Medicine 4 a.h.

1121 Principles of Anesthesia 4 a.h.

1122 Principles of Anesthesia 4 a.h.

1123 Principles of Anesthesia 4 a.h.

Total 15 a.h.

Second Year

1124 History of Medicine 4 a.h.

1125 Principles of Anesthesia 4 a.h.

1126 Principles of Anesthesia 4 a.h.

1127 Principles of Anesthesia 4 a.h.

1128 Principles of Anesthesia 4 a.h.

Total 16 a.h.
Nuclear Medicine Technology


Nuclear medicine technology is the portion of the allied health professions field which encompasses the techniques of using radionuclides in medicine. New techniques for studying body processes and imaging organs and disease sites have increased the development of nuclear medicine. Simultaneously, a variety of sophisticated equipment unique to the field has come into use, along with an increasing variety of radiobiological and radiopharmaceuticals. The breadth of this area of specialization includes, in addition to volume demands, demand for the development of nuclear medicine technology.

Nuclear medicine technologists work predominantly in hospitals and clinics in all phases of radionuclide use in medicine, daily preparation of radiopharmaceuticals for use; patients; preparation of patients for organ imaging, blood flow studies, metabolite absorption and utilization studies, or preparation of body content of a variety of substances; carrying out any of the above studies, including preparing image input or data records for physicist review, and using reagents tagged with radiomolecules in a variety of highly specific and sensitive assays of hormones, drugs in blood, and urine.

Bachelor of Science

The Nuclear Medicine Technology Program at the University of Iowa is accredited by the Council on Medical Education of the American Medical Association. Fulfillment of the requirements established by the American Accreditation Board involves three years of practical work in the College of Liberal Arts and a minimum of 15 months of professional clinical experience, available in the University of Iowa health Center.
Upon satisfactory completion of the four-year program, the student receives the Bachelor of Science degree with a major in general science and nuclear medicine technology, and is eligible for national certification as a nuclear medicine technologist.

Preclinical Program

The required preclinical courses emphasize the physical and biological sciences, which provide a basic background and which are prerequisites for the subjects and activities of the clinical year. The following is a summary of the prerequisites for acceptance into the nuclear medicine technology program:

- Satisfaction of the Core Curriculum general requirements, and the requirements for a general science major.
- A minimum of 36 semester hours distributed 16-12-8 among chemistry, zoology, and physics.
- A minimum of 8 semester hours in mathematics.
- A minimum of 96 semester hours in all coursework, with a 2.5 minimum cumulative grade point average.

Clinical Year

The clinical year is divided into The University of Iowa Health Center. The classroom portion covers in depth the clinical or technical specialties of physics of nuclear medicine, basic mammography, scanning instrumentations, radiochemistry, sulfhydryl compounds, electroencephalography, liquid scintillation, pathology, principles of nursing care techniques, principles of clinical administration, doctor's conference, and scans critique. The elements of histology, general pathology, and clinical studies, and medical ethics. Clinical rotations are established in radiology procedures, medical radiography, experimental laboratories, tracer techniques, and research application, thyroid function studies and rectilinear and other scanning, and in kinetic studies.

The clinical year comprises these courses:

74-100 Nuclear Medicine
Phlebogram
74-101 Nuclear Medicine
Practicum I
74-102 Nuclear Medicine
Practicum II

For course descriptions, see "Radiology" in this section of the Catalog.

Admission

Prospective students in nuclear medicine technology are encouraged to apply for study and to provide a brief description of their work experience as early as possible in the preclinical program, since the class size is at presently limited to seven students, and prerequisites are increasing in importance. Personal interviews are required. Successful applicants for the clinical training program are notified of their selection at least three months before the beginning of the next clinical class. At present, the 12-month clinical training program starts in September of each year.

Physical Therapy

Professor: Dr. Gary M. Smith
Assistant professor: Dr. L. Stuparz
Lecturer: Dr. G. Smith
Assistant professor: Dr. G. Stuparz
Assistant professor: Dr. L. Stuparz
Assistant professor: Dr. G. Stuparz
Assistant professor: Dr. L. Stuparz
Assistant professor: Dr. G. Stuparz
Assistant professor: Dr. L. Stuparz
Dental health: Dr. W. Stuparz
Degree offered: B.S., M.A. (M.D., in physical education)

Physical therapists participate in evaluation of the capabilities and disabilities of patients. They eliminate or treat to allow patients to perform, correct, or minimize deformity, and improve the general health status of the individual. They teach the patient, the patient's family, or other personnel the appropriate procedures for the patient's continuing care. They are also involved in the administration of physical therapy facilities, the supervision of supportive personnel, and consultation with other health professionals.

Physical therapy offers a wide variety of opportunities for professional practice in general or specialized hospitals, programs for crippled children, physicians' offices and physical therapy clinics, extended care facilities, nursing homes, community and governmental agencies, rehabilitation centers, the armed forces, foreign service, and athletic departments. Additional career opportunities are available for teaching in education programs of physical therapy and related professions.

One of the unique features of the Physical Therapy Program at The University of Iowa is that education is available at three different levels: basic professional (certificate), master's, and doctoral. There are 80 students in the basic professional program and approximately 25 full- and part-time students in advanced degrees programs.

The facilities are well equipped for classroom and laboratory instruction. The Physical Therapy Program is located in the College of Medicine, in the Health Center, which includes The University of Iowa Hospitals and Clinics, the nation's largest university-owned teaching hospital. Resources in this area make readily accessible to the Physical Therapy Program basic science and medical facility, basic science courses, and interdepartmental benefits associated with a College of Medicine environment.

Professional Program

The professional program in physical therapy at The University of Iowa is fully accredited by the American Physical Therapy Association and the Council on Medical Education of American Medical Association. Satisfactory completion of the professional program qualifies candidates for the Professional Examination Service (P.E.S.) test for licensure in Iowa and other states.

The two-year professional certification program consists of:

1. First Semester
   60:108 Human Anatomy 4.0 s.h.
   101:180 Fundamentals of Physical Therapy 3.0 s.h.
   101:115 Kinesiology 3.0 s.h.
   101:143 Therapeutic Physical Agents I 3.0 s.h.

2. Second Semester
   60:203 Introduction to Human Pathology 3.0 s.h.
Second Semester
60:120 Human Anatomy and 4 s.h.
Neuromotor
72:150 Intermediate Physiology 4 s.h.
101:285 Therapeutic Exercise I 3 s.h.
101:118 Clinical Observation 0 s.h.
101:101 Introduction to Clinical 2 s.h.
Medicine
101:122 Emotional Aspects of 1 s.h.
Disability
101:90 Physical Agents I 2 s.h.
101:106 Applied Bioscience 2 s.h.
Third Semester
101:105 Fundamentals of Orthopedics 3 s.h.
and Clinical Sciences
101:111 Therapeutic Exercise II 3 s.h.
101:113 Principles of Neurology 1 s.h.
and Clinical Sciences
101:244 Clinical Education and 2 s.h.
Rehabilitation
101:103 Scientific Inquiry 2 s.h.
101:121 Physical Therapy 1 s.h.
Administration
101:150 Fundamentals of 2 s.h.
Cardiopulmonary Resuscitation
101:170 Prosthetics and 1 s.h.
Orthotics
Fourth Semester
101:120 Clinical Internship 3 s.h.
Admission
A new class is admitted to the 75
professional curriculum 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 Bachelor of Science degree by successfully completing the first year of the professional curriculum program. Undergraduate students who complete their preprofessional work at other colleges or universities must meet the general admission and graduation requirements of The University of Iowa College of Liberal Arts; they should consult with the director of the Physical Therapy Program to plan their preprofessional studies to meet the requirements of the Physical Therapy Program. Regardless of academic preparation prior to admission, all students are enrolled in the same 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 in zoology or biology (12 semester hours; zoology preferred), a complete introductory course in chemistry (8 semester hours), a complete introductory course in physics (8 semester hours), a complete introductory course in psychology (9 semester hours), and one college-level mathematics course (3 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-year laboratory requirement. The applicant should have a minimum overall grade-point average of 2.7 (A=4), and a 3.0 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 may be required. The physical therapy admissions committee selects the applicants who appear to be best qualified for the study and practice in the profession. Applications are accepted beginning September 1 for the following year. Prospective students are urged to apply as early as possible. The closing date is February 1.
Graduate Programs
The graduate program in physical therapy emphasizes research and teaching in three areas of physical therapy: musculoskeletal (orthopedic), neuromotor (neurology), and cardiopulmonary. Physical Therapy emphasizes research and teaching in the musculoskeletal area. Clinical experiences are also offered. The programs focus on theoretical and practical bases for assessment and treatment of abnormal human movement. The master's degree requires a minimum of 30 semester hours of graduate coursework, the doctorate 90. Completion of basic professional physical therapy education is a prerequisite. Clinical experience is recommended.
Physical therapy laboratories are available for human and animal studies. Three laboratories are well equipped with electromechanical systems for measurement of locomotor functions such as muscle strength, gait, posture, reflexes, muscle activity (EMG), endurance, and gait capacity. Equipment includes laboratory computers. Use of extra departmental laboratories may also be arranged. Collaborative studies are encouraged with other departments, such as neurology, internal medicine, pediatrics, orthopedics, physiology, anatomy, pharmacology, and with personnel in the physical therapy clinics.
Master of Arts
A student successfully completing the M.A. program in physical therapy will:
Be able to engage in scholarship and research directly 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 of physical therapy training and show promise of ability to teach at the master's level;
Have a knowledge of the physical therapy theoretical and research literature related to a specific topic; and
Be skilled in the application of basic concepts in the areas of musculoskeletal, neuromotor, and cardiopulmonary physical therapy.
Required courses:
101:301 Thesis Physical Therapy 4 s.h.
101:315 Medical Instrumentation 3 s.h.
101:117 Biomechanics and Biosystems 3 s.h.
101:315 Principles of Human Motion I 3 s.h.
101:290 Cardiopulmonary 3 s.h.
101:270 Evaluation of Sensory 3 s.h.
Neuromotor Disorders
101:280 Teaching Practicum 3 s.h.
Doctor of Philosophy
A student successfully completing the Ph.D. program in physical therapy will:
1. be able to perform original scholarship and research directed toward the discovery of new theoretical principles that will advance the understanding of physical therapy clinical practice;
2. be able to teach at the basic professional and master’s levels of physical therapy education and show promise of ability to teach at the doctoral level;
3. have a knowledge of the physical therapy theoretical and research literature and be skilled in the application of basic and advanced concepts in the areas of musculoskeletal, neuromuscular, and cardio/pulmonary physical therapy.
For a description of the Ph.D. program, see "Physical Education—Field House" in the "College of Liberal Arts" section of the Catalog.
To be considered for admission to the Ph.D. program, the applicant must be a graduate of an approved professional program in physical therapy, must hold a master's degree, must have had calculus, and must meet the admission requirements of The University of Iowa Graduate College. (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.

Courses
The courses listed below are open only to students in the professional program.
1004 Foundations of Physical Therapy 2 s.h.
1005 Methods and Evaluation of Physical Therapy Clinical Practice 3 s.h.
1150 Principles of Exercise Continuation of 1011 2 s.h.
1202 Physical Agents 2 s.h.
1204 Clinical Practice 2 s.h.
1205 Clinical Practice (supervised) 2 s.h.
1207 Clinical Practice (supervised) 2 s.h.
1208 Clinical Practice (supervised) 2 s.h.
1210 Clinical Practice (supervised) 2 s.h.
1212 Clinical Practice (supervised) 2 s.h.
1214 Clinical Practice (supervised) 2 s.h.
1216 Clinical Practice (supervised) 2 s.h.
1218 Clinical Practice (supervised) 2 s.h.
1220 Clinical Practice (supervised) 2 s.h.
1222 Clinical Practice (supervised) 2 s.h.
1224 Clinical Practice (supervised) 2 s.h.
1226 Clinical Practice (supervised) 2 s.h.
1228 Clinical Practice (supervised) 2 s.h.
1230 Clinical Practice (supervised) 2 s.h.
1232 Clinical Practice (supervised) 2 s.h.
1234 Clinical Practice (supervised) 2 s.h.
1236 Clinical Practice (supervised) 2 s.h.
1238 Clinical Practice (supervised) 2 s.h.
1240 Clinical Practice (supervised) 2 s.h.
1242 Clinical Practice (supervised) 2 s.h.
1244 Clinical Practice (supervised) 2 s.h.
1246 Clinical Practice (supervised) 2 s.h.
1248 Clinical Practice (supervised) 2 s.h.
1250 Clinical Practice (supervised) 2 s.h.
1252 Clinical Practice (supervised) 2 s.h.
1254 Clinical Practice (supervised) 2 s.h.
1256 Clinical Practice (supervised) 2 s.h.
1258 Clinical Practice (supervised) 2 s.h.
1260 Clinical Practice (supervised) 2 s.h.
1262 Clinical Practice (supervised) 2 s.h.
1264 Clinical Practice (supervised) 2 s.h.
1266 Clinical Practice (supervised) 2 s.h.
1268 Clinical Practice (supervised) 2 s.h.
1270 Clinical Practice (supervised) 2 s.h.
1272 Clinical Practice (supervised) 2 s.h.
1274 Clinical Practice (supervised) 2 s.h.
1276 Clinical Practice (supervised) 2 s.h.
1278 Clinical Practice (supervised) 2 s.h.
1280 Clinical Practice (supervised) 2 s.h.
1282 Clinical Practice (supervised) 2 s.h.
1284 Clinical Practice (supervised) 2 s.h.
1286 Clinical Practice (supervised) 2 s.h.
1288 Clinical Practice (supervised) 2 s.h.
1290 Clinical Practice (supervised) 2 s.h.
1292 Clinical Practice (supervised) 2 s.h.
1294 Clinical Practice (supervised) 2 s.h.
1296 Clinical Practice (supervised) 2 s.h.
1298 Clinical Practice (supervised) 2 s.h.
1300 Clinical Practice (supervised) 2 s.h.
1302 Clinical Practice (supervised) 2 s.h.
1304 Clinical Practice (supervised) 2 s.h.
1306 Clinical Practice (supervised) 2 s.h.
1308 Clinical Practice (supervised) 2 s.h.
1310 Clinical Practice (supervised) 2 s.h.
1312 Clinical Practice (supervised) 2 s.h.
1314 Clinical Practice (supervised) 2 s.h.
1316 Clinical Practice (supervised) 2 s.h.
1318 Clinical Practice (supervised) 2 s.h.
1320 Clinical Practice (supervised) 2 s.h.
1322 Clinical Practice (supervised) 2 s.h.
1324 Clinical Practice (supervised) 2 s.h.
Physician's Assistant Program

Program director: Dean Oliva
Faculty: associate professor Quent Oliva
Assistant professor Douglas H. Litchen
clinical coordinator Barry J. Sosa
Degree offered: B.S.

The physician's assistant is a person qualified to collect histories and physical data about a medical patient, organize and present this data in such a way that the supervising physician can diagnose the medical problem. and assess the physician in determining appropriate diagnostic or therapeutic procedures. The physician's assistant is also capable of performing these procedures, and of coordinating the activities of other, more technical assistants. While the physician's assistant functions under the general supervision and responsibility of the physician, under certain circumstances, and under defined rules, the physician's assistant may function without the physician's immediate supervision, and thus must be able to exercise independent judgment based on general medical knowledge. The demand for physician's assistants is increasing in all types of health care settings.

The Physician's Assistant Program at the University of Iowa is approved by the American Medical Association's Joint Review Committee on Educational Programs for the Primary Care Physician, the Iowa Board of Medical Examiners, and the Association of Physician's Assistant Programs. Completion of the program qualifies students for the Bachelor of Science degree and for the opportunity to sit the National Certifying Examination for Primary Care Physician. Successful completion of the national certifying examination is a prerequisite for registration in Iowa.

The Physician's Assistant Program at The University of Iowa emphasizes the practice of general medicine in settings designed to foster the use of health care teams. In addition to education and career opportunities with private practicing physicians, a network of primary care clinics has been developed, in the state to serve communities with an integrated health care system. These family clinics integrate the physician's assistant into the medical delivery team with physicians, medical technicians, public health nurses, nursing assistants, and social service personnel.

The Physician's Assistant Program is an integral part of the College of Medicine. The third 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 program is divided into three broad phases. The initial, didactic phase consists of seven months of coursework in a number of basic science areas. Whatever appropriate, related subjects are integrated to provide sequential, laboratory, and clinical experience. A seminar course specifically directed to the history and development of the physician's assistant profession is also offered during this semester.

The second phase is 10-12 Introductions to Clinical Medicine for Physician's Assistant Students. This full semester course involves the application of basic science knowledge to the understanding of basic clinical-pathological correlations of the common and/or catastrophic disorders encountered in the major disciplines of medicine. The student also is instructed in the sciences and art of retaining a medical history and performing a thorough physical examination.

The third, clinical, phase consists of supervised rotations is required and elective specialties. These rotations of two or four, or six week rotations allow the student to apply the knowledge gained in the didactic and practical phases of the program and to develop additional skills through individual, supervised instruction. The clinical rotations are designed to provide the student with structured, hands-on 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 medical education. The placement of clinical training is provided by The University of Iowa Hospitals and Clinics, the Van Zeeke Medical Center in Des Moines and Iowa City, other affiliated institutions, the model health care clinic at Skateland, Des Moines, and a City, health care clinics at Skateland, Des Moines, and a City, health care clinics at
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's assistants on this type of service team. The program is integrated into the teaching of the College of Medicine, thus permitting interdisciplinary activities between various medical and health care professional students.

Professional Curriculum

First Year

7:1125 Pharmacology for Health Sciences: Physician's Assistant Students 6 s.h.
50:100 Law and Medicine for Physician's Assistant Students 1 s.h.
60:111 Gross Human Anatomy for Physician's Assistant Students 6 s.h.
61:110 Microbiology for Physician's Assistant Students 2 s.h.
89:203 Introduction to Human Pathology 4 s.h.
69:190 Clinical Pathology for Physician's Assistant Students 2 s.h.
72:164 Human Physiology for Physician's Assistant Students 4 s.h.
80:164 Biochemistry for Physician's Assistant Students 3 s.h.
117:101 Seminar for Physician's Assistant Students 2 s.h.
50:131 Introduction to Clinical Medicine for Physician's Assistant Students 20 s.h.

Second Year

Required clinical rotations:
70:565 Pediatrics for Physician's Assistant Students 6 s.h.
70:555 General Surgery for Physician's Assistant Students 6 s.h.
78:555 Internal Medicine for Physician's Assistant Students 6 s.h.
115:555 Family Practice I for Physician's Assistant Students 6 s.h.
115:556 Family Practice II for Physician's Assistant Students 6 s.h.
80:555 Obstetrics and Gynecology for Physician's Assistant Students 6 s.h.
73:555 Psychiatry for Physician's Assistant Students 4 s.h.

Elective clinical rotations, selected from the following:
70:102 Pediatrics Elective for Physician's Assistant Students arr.
70:100 Emergency Room for Physician's Assistant Students arr.
71:102 Orthopedics for Physician's Assistant Students arr.
115:500 Family Practice Elective for Physician's Assistant Students arr.
78:100 Internal Medicine Elective for Physician's Assistant Students arr.
82:106 Dermatology for Physician's Assistant Students arr.
74:105 Radiology for Physician's Assistant Students arr.
78:110 Surgery Elective for Physician's Assistant Students arr.
79:110 Rehabilitation Elective for Physician's Assistant Students arr.
79:120 Urology Elective for Physician's Assistant Students arr.
73:101 Psychiatry Elective for Physician's Assistant Students arr.
79:110 Surgery Elective for Physician's Assistant Students (Burn Unit)

Faculty

All courses in the physician's assistant professional program are taught by College of Medicine departmental faculty members. The program is administered with advisory assistance from a committee consisting of faculty of the College of Medicine, physicians in private practice, health care administrative personnel, and students currently enrolled in the program.

Expenses

In addition to general University student expenses, students in the Physician's Assistant Program are responsible for the purchase of their uniforms and diagnostic equipment. Microscopes are not required.

Admission

To be eligible for admission to the Physician's Assistant Program, the applicant must have completed 60 semester hours of college study, including:

College of Liberal Arts general education requirements in rhetoric, physical education, and the historical, cultural, literary, and social science cores.
A complete introductory course in inorganic and organic chemistry;
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 college-level algebra, trigonometry, and physics.

The applicant must have achieved at least a 2.5 grade-point average (A=4) on the last 40 semester hours of college coursework ungraded. The admissions committee gives principal attention to the applicant's performance in science courses.

Satisfaction of the basic admission requirements does not ensure acceptance into the Physician's Assistant Program. The admissions committee selects the applicants it considers best qualified. Applicants with previous health care experience involving direct patient contact receive differential considerations. The committee will request interviews with the most qualified applicants.

A new class begins the first week of June. Applications are accepted beginning one year in advance, and close January 15. Each applicant must complete The University of Iowa application and the Physician's Assistant Program supplementary application and submit all three letters of recommendation.

Coursed

117:201 Seminar for Physician's Assistant Students 3 s.h.
50:201 Laboratory, readings, and group study dealing with the pathology and development of physician's assistant profession. Open only to students in the Physician's Assistant Program.
117:202 Advanced Emergency Medicine for Physician's Assistant Students 3 s.h.

Four weeks of intensive instruction, including lectures, computer simulation, group study, case studies, and internship, which stresses disease management and clinical decision making. Open only to students in the Physician's Assistant Program.
Biochemistry

Graduate Programs

The Department of Biochemistry offers programs of study leading to the M.S. and Ph.D. degrees. The department also offers opportunities for qualified and interested students to pursue the M.S., M.D., or Ph.D.-M.D. (medical scientist-training) combined programs.

The spirit of the graduate program is on the individual student, whose educational needs are met in formal coursework and by tutorial conferences in the research areas from which he or she may choose a thesis topic. First-year graduate students usually take general and advanced biochemistry courses (39.135 Physical Biochemistry), a seminar on affective oral presentation (39.262 Seminar), and writing courses. Students spend about half of their time working in three different faculty laboratories (39.281 Research Techniques), learning research techniques in the context of ongoing projects.

At the end of the first year, students choose research laboratories for Ph.D. thesis research, begin their thesis projects, and take elective courses that supplement and complement their interests and preparation. Students are required to complete a minimum of 12 semester hours in advanced undergraduate biochemistry (chosen from the 14 offered) and 8 semester hours of elective science courses offered in other departments.

After passing the comprehensive examinations toward the end of the second year, students are formally admitted to degree candidacy, and concentrate on their thesis work. The program culminates in the completion of this work, and its successful defense before the thesis committee.

In addition to meeting these and the general requirements of the Graduate College, students are expected to assist in the teaching of biochemistry for two or three semesters, as part of their training. Throughout the program, students are associated with small seminar groups and receive close personal attention from the biochemistry faculty members who serve as research advisors.

Research Interests

The departme's current research interests include several areas of physical biochemistry, e.g. conformational control and chemical and biochemical reactivity of the carbohydrates, hormonal control mechanisms, structure and function of nucleosides, gene control in higher organisms, biochemistry of glycopolycarbohydrates, and carbohydrate-protein and calcium control of protein synthesis, biochemistry of proteases, characterization of liver and kidney enzymes, neuronal biochemistry, lipid metabolism, thermogenic mechanisms, conformational and allosteric evaluation of glycolytic enzymes, analysis of enzyme kinetics using cobaltic and tiole acid conjugates, enzyme mechanisms, and biosynthesis of active peptides and biochemical changes during development.

Facilities

Biochemistry shares modern (1972) quarters of the Basic Sciences Building with the departments of Anatomy, Microbiology, Pathology, and Physiology. Research and teaching laboratories in each department are interrelated, and faculty members with common interests are grouped around cores of important research facilities and equipment, further helping to bring the various groups into a more intimate relationship with one another.

The individual staff research laboratories are large and crowded, and the building provides generous space for many common-use facilities, including instrument rooms, reading rooms, cold rooms, glassware kitchens, and stockrooms. Research is facilitated by good technical support in such areas as glassblowing, machine shops, animal quarters, and electronics, and by services supplied by photogravure, illustrators, a secretarial staff, stockroom supervisors, purchasing agent, and technicians.

The department is well supplied with virtually all of the equipment used in modern biochemical research, including analytical and preparative ultracentrifuges, fluorescence spectroscopy, infrared absorption and nuclear magnetic resonance spectrophotometers, electron microscopy, electron micrographs, immunodiffusion, amino acid analyzers, gel electrophoresis, gas chromatography, liquid scintillation counters, electrophoresis equipment, an electron microscope, immunofluorescence, and a variety of Cary spectrophotometers.

In addition to the department reading room, excellent quarters are provided by the new (1972) Health Sciences Library, and the various other departmental branches of the University Libraries system.

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 bachelor's degrees in any of the biological, biochemical, or physical sciences. Requirements preparation includes one-year college-level courses in organic and physical chemistry, biology, and physics, and mathematics
Dietetic Internship

Director: Rose Ann Slapy
Educational Coordinator: Patricia A. Meneley

University of Iowa Hospitals and Clinics offers a dietetic internship program, which qualifies graduates to take the American Dietetic Association registration examination. The program is fully accredited by the ADA. Courses comprising the program are administered by the University of Iowa College of Medicine. The following are required:

- 60:201-202 Nutrition Seminar 2 s.h.
- 50:203-204 Clinical Nutrition 4-8 s.h.
- 50:205-206 Projects in nutrition 2 s.h.
- 50:209-310 Hospital Dietary Administration 4-8 s.h.

The following are recommended electives:

- 60:216 Comparative Nutrition 2 s.h.
- 50:216 Analysis of Food Service Systems 2 s.h.
- 60:211 Nutrition of the Child 2 s.h.

Students graduate complete the program with 16-17 semester hours of graduate credit. University Hospitals awards a certificate to graduates of the program. Credit earned in the program may be applied toward an advanced degree, and approximately half of the graduates of the program do go on to complete advanced degree programs, most typically the master’s degree in health economics, preventive medicine, health education, or business administration.

American Dietetic Association and University of Iowa Graduate College requirements for admission to the program include the baccalaureate degree with a strong background in food and nutrition, food service management, and basic sciences.

Students must enter the program in the fall semester. The deadline for application is March 1.

University Hospitals pays an intern stipend which partially covers educational and living expenses. For descriptions of program courses, see the "Nondepartmental," "Human Nutrition," and "Peterson's" listings in this section of the catalog.

Family Practice

Department head: Robert D. Yellin


Assistant professors: Robert E. Holley, Ronald L. Wilson, and Richard M. Clements.


The Family Practice Program was initiated in response to the need for more primary-care physicians in Iowa and throughout the nation.

Appropriate coursework in the department is included throughout the four-year M.D. program. The department's 16-semester hour rotation gives students opportunities for exposure to urban Iowa communities through work in affiliated hospitals or other institutions, including the University of Iowa Hospitals and Clinics, the University of Iowa Medical Center, and the University of Iowa Dental College. Training in Family Practice is a joint venture of the Department of Family Medicine and the Department of Obstetrics and Gynecology.

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Residency

The department directs a three-year residency program, graduates of which are eligible for certification by the American Board of Family Practice. This residency trains physicians to provide continuing and comprehensive care for the total family unit, utilizing a concept integrating the patient, family health professionals, and the physician into an efficient and effective health care team.

The program is intentionally flexible to allow each resident freedom to tailor his or her training to individual interests and needs.
needs. It includes a broad spectrum of electives in internal medicine, pediatrics, obstetrics and gynecology, psychiatry, medical and surgical specialties, and community medicine. The program currently offers 12 individual specializations.

The hospital-based clinical experience is a unique combination of exposure to practice in the University Hospitals, where the patients have been referred by physicians from all over the state, and in various community hospitals, where the residents care for patients in a home-like setting with a more general focus.

During the first year, a large portion of the program is based at Mercy Hospital in Iowa City, where residents have the opportunity to participate in the practice - both inpatient and outpatient - of the private physicians staff. Rotations are specifically designed to provide breadth of experience. In the second and third years, experience is available at Broadlawns Polk County, Iowa Lutheran, and Blank Memorial hospitals in Des Moines, St. Joseph Mercy Hospital in Mason City, the Mason City Community Health Center, the Red Oak Family Practice Center, and in selected teaching practices.

Teaching Fellowship

A two-year teaching fellowship in family practice begins each July 1. The primary goal is to train physicians in academic roles in family practice department or residency programs. Fellowships include research methodologies, administrative and teaching techniques, and modern educational methods.

Special Facilities

The department office is located in Childrens Hospital in the University Hospitals complex and is the center of department administration. It contains faculty offices, the University Hospitals Family Practice Office, and an inpatient unit. The department also maintains family practice offices at the University's Oakdale campus, four miles north of the west end, and at Williamsburg, 25 miles west of the city. The Williamsburg office is the only medical office in that community. In all offices, patient families are assigned to a resident with faculty supervision and are seen by appointment. Responsibility remains with that resident for the period he or she is in the training program. Emphasis is placed on teaching the principles of practice management, including the organizational and administrative aspects of practice making, patient record and bookkeeping procedures, and short auditing methodologies required to manage a private practice.

Courses

119 012 Health Care Development
Weekly meeting in small groups of students for problem-solving, skills-oriented training. Structured course lasts one semester; this outstanding group continues.

119 031 Principles of Family Practice

119 032 Facilitator Human-Computer Medicine

119 401 Family Practice, Broadlawns
Student participants in care of patients seen in the Family Health Center, as this allows limiting daily participation in care to those selected. Students rotate through various aspects of family practice care, including office, inpatient, and outpatient experiences, including teaching conferences.

119 402 Emergency Room, Davenport Clinic

Special events are to develop students' art and procedures in delivering quality primary care, knowledge of normal human behavior in this particular socioeconomic environment, affect on people's behavior, classes, rooms and board. Participate in care of patients seen in the Family Practice Clinic.

119 403 International Health Care

119 404 Internal Medicine

119 405 Pathology

119 406 Pediatrics

119 407 Preventive Medicine

119 408 Public Health

119 409 Community Health Education

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Genetics

The Ph.D. program in genetics is an interdepartmental program involving members from the Departments of Biochemistry, Botany, Microbiology, and Zoology, as well as a number of faculty members in other departments. See "Genetics" under "College of Liberal Arts" for a list of participating faculty members, degree requirements, and sources offered.

Hospital and Health Administration

Program director: Janet Leaver
Associate professor: Daniel Hartman
Professor: David S. Lewis
Assistant professor: Barry R. Lerman
Instructor: Barry S. Weir, Jr., Charles E. Twaddell
Adjunct professor: John M. Faifer
Adjunct professor: Jeff T. Atwood
Adjunct professor: Robert D. Miller, John S. Purnell, Kenneth H. Geist, Donald B. Anderson, Herbert S. Aron, David S. Bickford, St. Mary Riverdale Lancer, and喜好

Since its inception in 1950, the Graduate Program in Hospital and Health Administration has offered two degree programs, each having distinct, mutually reinforcing academic objectives. The Master of Arts program is designed for individuals who seek executive positions in health organizations. The Master of Public Health program is designed primarily for those who are interested in careers in teaching and research in the health fields, although individuals seeking senior managerial appointments in health organizations are also encouraged to apply.

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 providing students with the knowledge, attitudes, and skills required to function in responsible managerial positions in hospitals, long-term care institutions, ambulatory care facilities, planning agencies, and related health organizations.

In the first year, courses are designed to familiarize students with the policies, political, economic, and legal environments of hospitals and health care institutions. Concepts, tools, and techniques for efficient and effective managerial decision making, planning, and control are introduced. The entire program is focused on an interdisciplinary approach which includes exposure to the theoretical and applied aspects of health systems management.

In the second year, the curriculum is oriented to the special interests and career objectives of individual students. An administrative residency may be arranged as an integral aspect of the program. Students will be provided with opportunities to concentrate in areas such as hospital administration, health planning, or part-time care administration.

Although a minor 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 64 semester hours of graduate work. All master's students must complete eight core courses which represent a core of disciplines and skills necessary for success in the field. These courses are as follows:

- 300/101 Introduction to Health Care Organization
- 401/102 Health Administration
- 402/104 Economics of Health Care
- 403/105 Legal Aspects of Health and Medical Care
- 404/123 Financial Management of Health Care Institutions
- 405/227 Quantitative Planning Methods
- 406/238 Quantitative Applications in Health Care
- 407/240 Issues in Health Administration

In addition to elective courses, the program, students are encouraged to take advantage of relevant courses offered by the Department of Preventive Medicine and Environmental Health in the College of Medicine, and by the colleges of Business, Nursing, Pharmacy, Education, and Liberal Arts.

Five Year Program

As early admissions plan supported by the W.K. Kellogg Foundation enables a student to complete both the M.A. and undergraduate requirements in five years. Traditionally, students entering
the field of hospital or health administration have exhibited an early interest in the health sciences or management. Diversity of background will contribute to the development of a wide-based health administrator who can offer differing perspectives on planning, organizing, and leading. The plan seeks to attract exceptional students from diverse backgrounds.

The student's undergraduate college must be willing to award the bachelor's degree after the student's successful completion of a specified number of college credit hours. Upon receiving the bachelor's degree, the student becomes eligible for admission to the Graduate College, a prerequisite for receiving a graduate degree.

Students who wish to be considered for the early admission plan should apply directly to the program during the third year of undergraduate work. Early application will make it possible for the applicant to be advised regarding prerequisites. Letters of inquiry and applications should note that early admission is desired.

Joint Programs

Students may wish to pursue an integrated program leading to a graduate degree in hospital and health administration and a graduate degree in another discipline such as business administration or urban and regional planning. Joint programs are encouraged. Applicants who are interested in a joint program should indicate this when requesting application material.

Doctor of Philosophy

The primary purpose of the doctoral program is to prepare scholars who are committed to the pursuit of excellence in teaching and research in management and policy development in the health fields.

At the doctoral level, the curriculum is organized into four basic fields of study, and students are expected to demonstrate competency in each:

Research Methodology and Quantitative Analysis
Health Systems Management and Evaluation
Poltical, Social, and Economic Aspects of Health Care
Medical Care Organization

Doctoral students will be exposed to advanced coursework in health services management, health policy, and health services research. Doctoral candidates are required to complete at least 90 semester hours of graduate work, pass comprehensive examinations, and submit an acceptable dissertation.

An option available to students in the master's program permits filing a joint program for the M.A. and Ph.D. degrees. In addition to satisfying the academic requirements of both programs, the doctoral student must satisfy the requirements of the Graduate College.

Admission

Admission procedures are the same for M.A. and Ph.D. applicants. A qualified student with a baccalaureate degree in any discipline from an accredited college or university may apply for admission. Applicants for admission to the doctoral program are generally expected to possess master's degrees in health administration, medical care organization, public health, or in other fields related to health.

Introductory undergraduate courses in statistical, accounting, management, and statistics are program prerequisites. In special cases, at the discretion of the faculty, students may be permitted to complete the prerequisite courses subsequent to admission. Students must have a 3.0 grade-point average for regular admission, although a student with a lower grade-point average may be admitted upon recommendation of the faculty.

All students applying for admission are required to furnish copies of all pertinent professional, graduate and undergraduate coursework, three letters of recommendation, and a formal statement outlining career objectives. Applicants are required to take the Graduate Record Examination (GRE) Aptitude Test and are encouraged to take the Graduate Management Admission Test. A personal interview is usually requested prior to admission.

Applicants are acceptable for admission in the fall semester only. Completed applications must be filed not later than July 15. Early applicants may be notified of admission by March 15.

Financial Aid

A limited number of traineeships, research assistantships, and tuition scholarships are available to support students in both the M.A. and Ph.D. programs.

Courses

30.91 Introduction to Health Care Organizations 3 s.h.

30.92 Health Administration 3 s.h.

30.93 Health Care Management 3 s.h.

30.94 Health Care Management 3 s.h.

30.95 Comparative Health Systems 3 s.h.

30.96 Health Systems Analysis 3 s.h.

30.97 Health Systems Research 3 s.h.

30.98 Health Policy and Management 3 s.h.

30.99 Health Policy and Management 3 s.h.

30.100 Health Policy and Management 3 s.h.

30.101 Health Policy and Management 3 s.h.
Human Nutrition

Program dir.: Samuel Fomon

Endowed professor: Edward Rabinowitz (Pediatrics), Mike Armstrong (Biological Medicine), C. Patrick Burns (Internal Medicine), Dr. Paul Levenson (Pathology), Samuel Fomon (Pediatrics), Peter Lauthemarch (Pharmacology, Medicine, Endocrinology), Hartley (Pharmacology, Medicine and Environmental Health), Alvin Hor (Internal Medicine), Edmund Weber (Geriatrics), B. Medicke (Pharmacology), Rex Montgomery (Associate Dean, College of Medicine), Arthur Novak (Pediatrics), Roy Price (Obstetrics and Gynecology), Robert Roberts (Pharmacology and Pharmacology), Harold Schall (Internal Medicine), Russel Smith (Dean for Advanced Studies, Graduate College), Arthur Specter (Biological/Inferior Medicine), Lawrie Segraves (Pharmacology, Biochemistry), Ronald Strauss (Pediatrics), Charles Tapan (Physical Education (Physiology and Biophysics), Gerg Welling (Biochemistry), Stephen Weis (Pediatrics), In Falm (Vascular (Pediatrics), associate professor Anu Astar (Pharmacology), R. I. Stein (Dana Science), James Rosen (Pediatrics), Carmen Lea-Baillona Dana Economics), Ethel Szep (Pediatrics), assistant professor Edward Bell, Helen Schmalz (Internal Medicine), Professor Emeritus of Pediatrics, University of Illinois at Chicago., assistant professor Edward Bell, Helen Schmalz (Internal Medicine), Professor Emeritus of Pediatrics, University of Illinois at Chicago.

Degree offered: Ph.D.

The goal of the doctoral program in human nutrition is to train individuals for careers in research and teaching. It is anticipated that the majority of individuals completing this training will find employment as members of the faculties of medical centers, departments of nutrition in schools of public health, various governmental agencies, or industry. Students accepted into the program without previous graduate training will be expected to devote approximately five years in acquiring the necessary breadth in biomedical education, laboratory methodology, use of animal models for study of human problems, and developmental design for clinical investigation.

Coursework will be arranged to permit each student to spend three to twelve months in each of three or four research laboratories during the first 24 months of the training program. It is anticipated that the student will eventually choose to complete his/her research in one of these laboratories. The five-year training program permits intensive research during the last three years. In special instances the advisory committee for the program in human nutrition may waive certain requirements.

otherwise, the following core curriculum is mandatory for all students:

96:183 Biochemistry for Medical Students
96:192 Medical Physiology
96:193 The Chemistry of Biological Materials
96:194 Metabolism
96:195 Medical Physiology or
96:196 Intermediate Physiology
96:203 Molecular Endocrinology
All of these:
63:161 Introduction to Biochemistry
63:262 Design and Analysis of Experiments in Biomedical Sciences
63:168 Principles of Epidemiology
63:268 Advanced Epidemiology Methods
77:103 Introduction to Radiocarbon and Radiobiology
77:224 Radiocarbon in Biological Research
65:203 Clinical Nutrition
65:204 Clinical Nutrition
65:213 Nutrition Methods

Admission

The Ph.D. program in human nutrition aims at attracting students with a wide range of previous interests and training. Prerequisites for admission to the program include completion of acceptable courses in college-level mathematics and English, a minimum undergraduate grade-point average of 3.0 (A = 4.0) with a 3.0 average in science and mathematics courses, and an acceptable score on the verbal, quantitative, and analytical sections of the Graduate Record Examination (GRE) Aptitude Test. Individuals interested in further details of the program may wish to direct their attention to the following.

Facilities

Students accepted into the program will have an opportunity to participate in a wide range of nutrition research activities. Facility advisors are available in a number of departments: Anatomy, Biochemistry, Home Economics, Internal Medicine, Obstetrics and Gynecology, Pediatrics, Pharmacology, Physiology and Biophysics, Preventive Medicine and Environmental Health, and Surgery.

Financial Support

Financial support is available to all students in the program.

Courses

63:201 Nutrition Seminar 1 hr.
Discussion of problems in research design for nutrition studies, including clinical investigations.
Offered fall semesters.

63:202 Nutrition Seminar 1 hr.
Discussion of problems in research design for nutrition studies, including clinical investigations.
Offered fall semesters.

63:301 Clinical Nutrition 4 hr.
Energy, nutrient contents, nutrient-nutrient and drug-nutrient interactions, selected aspects of food technology, dietary habits, emphasis on nutrition of normal individuals. Offered fall semesters. Offered beginning 1980.

63:304 Clinical Nutrition 4 hr.
Assessment of nutritional status, age- and sex- specific considerations, common clinical disorders, forms, dietary, personal nutrition. Offered spring semesters. Offered beginning 1980.

63:306 Projects in Nutrition 2 hr.

63:307 Nutrition Research 2 hr.

63:309 Nutrition Research 2 hr.

63:316 Unit of the DNA 2 hr.
Developmental aspects of normal and abnormal phenomena of the intact and intact tissues. And early feeding practices and DNA regulation; influence of early feeding and administration—health. Offered fall semesters.

63:512 Nutrition Biochem. 2 hr.

History of nutrition research, current studies in nutrition, proteins, carbohydrates, lipids, vitamins and minerals, and their role in health. Offered fall semesters.

63:515 Comparative Nutrition 3 hr.
Age, sex, species differences in metabolism and nutrition of humans and domestic and developed countries. Offered spring semesters.
Internal Medicine

Graduate Program

The department offers straight internships and an approved residency program of high quality. In addition, 20% of the department's specialty divisions offer clinical and research fellowships for periods of one to two years. These permit the development of specialized knowledge and skills relevant to the specialty. Candidates for internships are selected from approved medical schools. Postdoctoral fellows who have obtained their doctorates are also selected for program positions in which the major focus is laboratory research.

Facilities

Teaching occurs in the medical services and in the laboratories of the University hospitals in Iowa City, the Veterans Administration hospital in Iowa City and Des Moines, and St. Mary's Hospital in Des Moines.

Courses

1983 Current Research and Special Study
- Investigation of the mechanisms of and methods for the diagnosis and treatment of all forms of cardiovascular disease and the development and application of new diagnostic and therapeutic modalities.

1984 Current Research and Special Study
- Investigation of the mechanisms of and methods for the diagnosis and treatment of all forms of cardiovascular disease and the development and application of new diagnostic and therapeutic modalities.

1985 Current Research and Special Study
- Investigation of the mechanisms of and methods for the diagnosis and treatment of all forms of cardiovascular disease and the development and application of new diagnostic and therapeutic modalities.

1986 Current Research and Special Study
- Investigation of the mechanisms of and methods for the diagnosis and treatment of all forms of cardiovascular disease and the development and application of new diagnostic and therapeutic modalities.
Medical Scientist Training Program

Program Director: Robert E. Fellows (Physiology) and Edward T. Lester (Pharmacology)

The Medical Scientist Training Program (MSTP) is designed to prepare a limited number of very highly qualified men and women for a lifetime of creative professional activity in academic medicine and biomedical research. To accomplish this, the MSTP follows a curriculum sequence which provides efficient integration of graduate education and doctoral research training with the full complement of clinical studies necessary for the medical degree. Requirements for both the M.D. and Ph.D. degrees can be completed in six to seven years of continuous study.

The Medical Scientist Training Program is administered by an executive committee composed of the heads of the five basic sciences departments and the departments of Internal Medicine, Pediatrics, and Psychiatry. An advisory committee, selected from the faculty of these departments, acts as a liaison with the individual departments, provides training with guidance, and advises the executive committee on matters related to candidate selection.

In the first two years of the MSTP, trainees are enrolled in the College of Medicine for the basic science and introductory clinical portions of that curriculum. In the first three semesters, the basic science core provides trainees with broad exposure to the language and organizing concepts of the basic sciences, which constitute a foundation essential for all subsequent medical training. Trainees take courses in biochemistry, microscopy anatomy, gross anatomy, and bio-statistics in the first semester, histology in the second, physiology in the third, microbiology, and general pathology during the second semester. The first semester of the second year is devoted to the study of pharmacology, systemic pathology, community health sciences, neuroanatomy, and behavioral science.

In the second semester of the second year, trainees are enrolled in Bio 50111 Introduction to Clinical Medicine, which initiates the development of skills necessary for building and maintaining competence as physicians. This semester provides instruction in history-taking, physical diagnosis, and laboratory diagnosis, as well as insight into major health problems and needs. 50111 Introduction to Clinical Medicine is followed in the summer of the second year by six-week clinical clerkships in two of the following disciplines: medicine, pediatrics, psychiatry, surgery, and obstetrics and gynecology.

By the middle of the second year, the student chooses the graduate department in which he or she will enroll full time for the third, fourth, fifth, and, to the extent necessary, sixth years, to acquire academic and research experience appropriate to his or her development as an independent investigator. This scientific training is directly supervised by selected faculty of the student's graduate department.

As soon as trainees complete the graduate component of their training, they immediately return to the College of Medicine to begin their final clinical year. This year serves two purposes. First, it allows the trainee to take his or her knowledge of laboratory science back into the clinical environment and apply it to problems of human disease. Second, it permits the trainee to renew and develop the clinical skills and knowledge acquired in the second year of the program. With completion of the final 36 weeks of clinical clerkships, including medical and surgical subspecialties, trainees are awarded the M.D. and Ph.D. degrees.

Financial Support

Trainees admitted to the MSTP receive stipend and tuition support for up to seven years from an MSTP award to the University of Iowa from the National Institutes of Health or from funds provided by basic science departments in cooperation with the College of Medicine and Graduate College. Support for trainees admitted to advanced standing in the MSTP is arranged on an individual basis.

Eligibility

All applicants must be acceptable for admission to both the College of Medicine and the Graduate College of The University of Iowa. In addition to having completed requirements for a bachelor's degree at an accredited college or university, applicants are expected to have completed one or more years of graduate study, in addition to outstanding academic credentials, including strength in physical and mathematical sciences, the applicant should demonstrate aptitude and commitment to scientific research, usually through productive research experience as an undergraduate. Applications are normally accepted from students requesting admission to the first year of the MSTP. Consideration is also given to applications for advanced standing from individuals currently enrolled in the College of Medicine or Graduate College at The University of Iowa.

Application Procedures

The University of Iowa College of Medicine is a participant in the American Medical College Application Service (AMCAS). MSTP applicants should submit AMCAS to forward their credentials to the College of Medicine (OS 110) on or before June 15. At the same time, applicants should request a separate MSTP application form from the MSTP Office, 9-660 Basic Sciences Building, University of Iowa, Iowa City, Iowa. The deadline for submission of the MSTP is reviewed by the selection committee after the AMCAS application is received.

The deadline for receipt of applications is December 1. It is strongly recommended that all application materials be submitted as early as possible to facilitate review by both the College of Medicine Admissions Committee and the MSTP selection committees. The early decision requirement of the College of Medicine for out-of-state residents is waived for the MSTP. Equal consideration is given to all applicants regardless of their state of residence.

All candidates for admission to the MSTP should take both the New Medical College Admissions Test and the
Graduate Record Examination (GRE) Aptitude Test, preferably in the spring and no later than the fall of the calendar year in which an application is submitted.

Medical Technology

See "Division of Associated Medical Sciences" in this section of the Catalog.

Microbiology

Chair: Irving P. Crawford
Faculty: professors John S. Butler, John Caste, Jr., Irving P. Crawford, Thomas L. Feldhahn (Chromatography), Rudolph F. Glaser (Chromatography and Spectroscopy), Leslie H. Hoffine, William Joosue, Jr., James F. Markovitz, Ernst W. R. Donaldson, Donald F. Smith, Martin J. Stamaty, George D. Cox, William J. Finley, Daniel M. Lubin (Urology), James H. Pumphrey, Max F. Stamm, Edward A. Stahl, David H. Walker, assistant professors George V. Bavister, Degrees awarded: B.S., M.S., Ph.D.

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 five 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.

Usually the department accepts only candidates for a Ph.D. degree, but occasionally it accepts students desiring a terminal M.S. degree. Students working for the Ph.D. degree may obtain an M.S. degree during their graduate work, or proceed directly toward the Ph.D.

All students admitted as candidates for advanced degrees are expected to enroll 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, offering ample opportunity for students to avail themselves of the University's diverse course offerings, seminars, and research programs. For example, course and seminars in clinical laboratory microbiology, immunology, genetics, cellular and molecular biology, and electron microscopy are taught on an interdisciplinary basis.

Master of Science

Course requirements for the M.S. student are the same as those for the Ph.D. program. The M.S. student must prepare a thesis based on his or her own research.

Doctor of Philosophy

A candidate for the Ph.D. must satisfy departmental course requirements: one course in each of the six subdisciplines available in the department, or 15 semester hours of coursework in two different areas; pass a comprehensive examination; and write a thesis and defend it satisfactorily in an oral examination.

Facilities

The department shares the Basic Sciences Building with the departments of Anatomy, Biochemistry, Pharmacology, and Physiology. Adequate space and excellent equipment are available for teaching and research.

Admission

Prospective graduate students should become familiar with the general admission requirements of the Graduate College. Departmental requirements 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 (inorganic, organic, quantitative analysis), mathematics (up to calculus), and physics. Students admitted without the above coursework must take it during the first year of graduate school. The student should have a grade-point average of 2.7 or better to be admitted to the graduate program in microbiology.

Courses

0110 Medical Microbiology

Principles and methods essential to study of microorganisms, their identification and isolation; microbial agents involved in infectious disease; current concepts of taxonomy. Prerequisites: General Chemistry and Microbiology.

0110 Microbiology for Physician's assistant

Introduction to medical microbiology, with emphasis on the basic and applied aspects of human and animal pathogens. Microorganisms and procedures used in a physician's office. Prerequisites: approval of the department.

0117 Survey of Parasitology

Introduction to survey of fundamental aspects of ruminant and mammalian parasitology, and their application to clinical problems: recognition of endoparasites; identification of parasites from the gastrointestinal tract and respiratory, digestive, urogenital, and other systems. Prerequisites: satisfactory completion of introductory courses in biology, chemistry, and zoology, or permission of the instructor. Prerequisites: approval of the department.

0119 Oral Microbiology

Practical tools for oral hygiene; prevention of dental decay; the role of plaque as a cause of dental caries and periodontal disease; methods for the control of pathogenic microorganisms. Corequisites: 410; 417.

0116 Pathogenic Bacteriology

Dissection of pathogenic bacteria, with emphasis on mechanisms of pathogenicity and laboratory methods used for detection and identification of bacteria; bacteriologic advances methods used in study of pathogenic bacteria. Prerequisites: 0115 and consent of instructor.

0116 Medical Microbiology

Principles of bacteriology and virology, including knowledge of the structure, reproduction, and mode of action of viruses, bacteria, and fungi. Prerequisites: 0115 and consent of instructor.

0115 Biology of Microorganisms

Student works on research projects under supervision of a faculty member. For undergraduate students with sufficient background. Prerequisites: 0115 or equivalent, and consent of instructor.

0114 Dental Microbiology

Introduction to course covering bacteriology, immunology, pathogenic bacteriology, virology, and microbiology. Open only to dental students.
Coursework for M.D. Students

The courses in obstetrics and gynecology are designed to give M.D. students a comprehensive survey of female reproductive problems. This is done through a series of didactic lectures, inpatient and outpatient assignments, ward rounds, teaching seminars, and special elective courses.

The third-year clerkship (884-C Clinical Obstetrics and Gynecology) gives the student core knowledge, skills, and attitudes necessary to provide health care to women patients.

The department offers a four-year residency program for those interested in providing direct patient care in obstetrics and gynecology. Residents spend a majority of their time in the operating room, as well as in ambulatory settings. Residents also have the opportunity to participate in research and clinical trials.

The residency program is accredited by the Accreditation Council for Graduate Medical Education (ACGME). It is a three-year program that provides residents with a comprehensive education in obstetrics and gynecology. Residents are eligible to be certified by the American Board of Obstetrics and Gynecology.

During the four years, the resident rotates through the various divisions of the department and for care for both hospital inpatients and outpatients. This includes inpatient and outpatient care in the clinic, as well as in the hospital. Residents are involved in the management of patients with a wide range of obstetric and gynecologic conditions, including high-risk pregnancies, gynecologic malignancies, and pelvic reconstructive surgery.

Residents are responsible for attending to the needs of both inpatients and outpatients, as well as for helping to train and supervise medical students and residents.

The department is committed to providing a patient-centered, evidence-based, and compassionate approach to the care of women. Residents are encouraged to participate in research and to develop a research project during their residency.

The residency program is designed to prepare residents for a career in obstetrics and gynecology, whether in academic medicine, private practice, or a combination of both. Residents are encouraged to develop their own interests and to pursue their own areas of expertise.

Residents are supervised by attending physicians who are leaders in their respective fields. Residents have the opportunity to work with and learn from these experts, as well as to develop their own clinical and research skills.

The department is committed to providing a supportive and inclusive environment for all residents, regardless of background or identity. Residents are encouraged to seek out opportunities for professional development and to participate in activities that help them achieve their personal and professional goals.
Facilities
The department maintains several research laboratories: tumor diagnosis, pathology and electron microscopy, electrophysiology, microbiology, pulmonology, and vascular diseases. Clinical facilities are available not only at the University Hospitals, but also at the Alumni Administration hospitals in Iowa City and in Des Moines. The department also manages an eye clinic at the Broadlawns Polk County Hospital. The department sponsors an annual national conference, and monthly a statewide program of continuing education.

Two features of the department are outstanding: a large full-time faculty, and the opportunity it offers to prepare for a career of teaching and research in ophthalmology.

Courses
- 101-Electives in Ocular Pathology and Physiology 3 cr.
- Four-week course devoted to reading and reviewing articles in opthalmology, including current research; emphasis on the appropriate use of ocular glasses, reading or biological images, analyzing or reference materials, examining teaching collection of slides, and self-assessment examination.
- 102-Electives in Ocular Surgery 3 cr.
- Six-week course in medical, ophthalmic, or internal medicine; emphasis on visual and ocular problems; patient workup; medical management of pupillary problems; and surgical management of cataracts.
- 103-Electives in Pediatric Ophthalmology 3 cr.
- Four-week course on ophthalmology and general practice, emphasis on screening of pediatric patients; and resident assignment, self-assessment program.
- 104-Electives in Ophthalmology 3 cr.
- Four-week course in ophthalmology and general practice, emphasis on screening and preventive therapy, long-term medical management of patients suffering from glaucoma.
- 105 Introduction to the Evaluation of the Eye 3 cr.
- Four-week course for students with particular interest in ophthalmology, covers ocular history, visual testing, treatment of diseases and ocular conditions, preparation of the eye, and basic examination; includes laboratory material for one-year residents in ophthalmology.
- 201-Optimath 4 cr.
- Language course in basic and clinical sciences applied to ophthalmology; disease lectures, electrodiagnosis, laboratory techniques, and research; clerkship in evaluation of American Board of Ophthalmology, externship clinics in Iowa City and Des Moines.
- Resident assigned to several rotations in basic science for one year, and to clinical rotations for two years; one year in research, provided student meets Graduate College requirements and presents an acceptable thesis.

Requirements include one or two years of statistics, anatomy, and animal care.

Orthopaedic Surgery
Department head: Reginald R. Cooper

The department offers two types of postgraduate training—five-year integrated clinical program in which the intern and resident participate simultaneously in inpatient care, outpatient care, surgery, and science; and four-year program related to the musculoskeletal system, and a five- or six-year program for those interested in full-time academic orthopedic 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 orthopedic internship and four years in orthopedic residency.

During the internship year, the trainee gains experience not only in clinical orthopedics, but is in medicine, pediatrics, neurology, surgical specialties, intensive care, and anesthesiology.

During the following years, residents gain experience in infants, children's orthopedics, adult orthopedics, neuromuscular disorders, rehabilitation, prosthetics and orthotics, rheumatology, and basic science as related to orthopedics. The residents take specialized courses in anatomy, bone biology, biochemistry, physiology, and pathology.

A weekly seminar covers biomechanics, kinesiology, and selected clinical arthroscopic residents also attend the Northwestern University course on lower extremity arthroplasty.

Program for Full-Time Academic Orthopedics
This program includes the training described under the clinical program above. In addition, the resident devotes one or two years to research. This research may be in any field in which the resident is interested, provided it is related to the musculoskeletal system, and may be done in one of the orthopaedic laboratories or in a basic science department.

Departmental Laboratories
The orthopaedic laboratories deal with problems in these major subject areas:

- Biochemistry—The biochemistry of mucopolysaccharides and collagen, both normal and those altered in epiphyseal dysplasias and scoliosis.
- Biomechanics—In conjunction with the College of Engineering, biomechanical problems of the upper extremity, biomechanics of the hip and the gait, and local joint replacements.
- Cell biology and pathology—Ultrastructural studies on normal bones, cartilage, tendons, and muscles, and on those altered by experiment and disease.
- Tissue transplant—Radiative isotope metabolic bone disease—Skin, bone, and cartilage transplantation, and various aspects of mineral composition and bone density in metabolic bone disease.

Facilities
The department is housed in the Carter Pavilion of The University of Iowa Hospitals and has an active service in the Veteran's Administration Medical Center.

Facilities include 100 beds, an outpatient clinic, a specialty laboratory, a specialty radiology unit, a brachytherapy unit, and physical therapy facilities.
Physicians in the outpatient clinic see approximately 100 patients a day. Specialty clinics deal with such problems as scoliosis, club foot, congenital dislocated hips, neuromuscular disease, metabolic diseases, amputees, hips, knees, hands, sepsis, and trauma.

Approximately 1,500 major operations are performed each year under auspices of the department. The department provides consultant service to the Hospital School for Handicapped Children, State Services for Crippled Children, and two state schools for the mentally retarded.

Courses
17.0 Clinical Orthopaedics
17.10 Orthopaedics for Physician’s Assistant Students
17.10 Rehabilitationedicine For Physician’s Assistant Students
17.01 Advanced Clinical Orthopaedics
Open to senior medical students only.
17.01 Maxillofacial Traumas
Open to senior medical students only.
17.05 Surgical Care of the Head
Open to senior medical students only.
17.05 Laboratory Experiences
Open to senior medical students only.
17.05 Special Studies on Campus
Open to senior medical students only.
17.05 Special Studies off Campus
Open to senior medical students only.

Otologyngy and Maxillofacial Surgery

Department head: Bola F. McCollum

Senior lectures: Shree K. Velthuis professor emeritus Scott H. Rege
associate professor Charles F. Andrews, Robert M. Bussmann, Willson R. Parg
associate professor emerita Jacinta L. Smith assistant professor Richard W. Babin, Richard Vaux
research scientist Vincent V. Vela, Lee R. McPherson associate professor Carl Banks, Ray Atkinson, Roger Simpson
Degree offered: M.D.

The department provides one of the oldest and largest otolaryngology and maxillofacial surgery training programs in the world. Currently it has a full-time faculty of 16, including several members from the audiology, dentistry, and speech pathology professions.

The department’s main objective is to provide a high-level instructional program in otolaryngology and maxillofacial surgery for medical students and residents. To maintain a teaching program, the department’s faculty and staff carry a large patient load in head and neck oncology, maxillofacial trauma, craniofacial defects (such as cleft palate), disorders of the vestibular mechanism, facial plastic surgery, pediatric and geriatric hearing problems, voice problems, personal disorders, and all the areas usually considered otolaryngologic.

In addition to the major otolaryngology and maxillofacial medical-surgical service, there are five other divisions in the department which make this program comprehensive: craniofacial, congenital, oncologic surgery of the head and neck, plastic and reconstructive surgery of the head and neck, research, and speech pathology and audiology.

Another major objective of the department is to foster research programs designed to yield new knowledge in the field and provide models for student and resident research training.

All senior faculty members participate in research and all residents are required, as part of the resident training program, to design, conduct, and report on a research project during their program of study. In addition, there are several large-scale research programs within the department in vestibular neurophysiology, cleft palate, and other craniofacial defects, neurophysiology, facial nerve conduction, microvascular reconstructive surgery, the effects of aging on hearing, anatomy of the temporal bone, neurootology, audiometry, bone disorders in the ear, disease, and electrootology of the inner ear.

Several of these research programs receive federal and private financial support.

Graduate Program

The graduate program in otolaryngology is in accord with the requirements of the American Board of Otolaryngology.

The program consists of a four-year course of basic and clinical science.

The basic science lectures and laboratory studies are conducted during the first three and one-half months of residence.

After passing an oral and/or written examination, the student enters the clinical phase of the course, which includes supervised clinical and operative work, clinical conferences, and seminars pertinent to the practice of otolaryngology and its related fields.

To complete the requirements for the Master of Science degree, the student must earn at least 30 semester hours of credit, one-third of which must come from the basic science group, and must present and defend a thesis. Students capable of additional work may also take elective courses.

A limited number of resident physicians can be accepted each year. Applicants must be graduates of a recognized class A medical school and must have completed one year of general surgical training in an approved program.

Courses

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Otolaryngology and Maxillofacial Surgery

Department head: Bola F. McCollum

Senior lectures: Shree K. Velthuis professor emeritus Scott H. Rege
associate professor Charles F. Andrews, Robert M. Bussmann, Willson R. Parg
associate professor emerita Jacinta L. Smith assistant professor Richard W. Babin, Richard Vaux
research scientist Vincent V. Vela, Lee R. McPherson associate professor Carl Banks, Ray Atkinson, Roger Simpson
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To complete the requirements for the Master of Science degree, the student must earn at least 30 semester hours of credit, one-third of which must come from the basic science group, and must present and defend a thesis. Students capable of additional work may also take elective courses.

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Pathology

Department head: George D. Pavlov

Associate: Edward D. Warner

Assistant: Carol A. Greenbaum, Robert T. Clark, Fred A. Ribak, Howard D. Fein, George P. Weis, George D. Pavlov

Instructor: James A. O'Neal, Frank A. Amin, Ronald P. Wexler

Research: Matthew A. Harmon, Richard S. Hayes, James O'Connell, Martin Breslauer, Alice Batchelor, Frank Wexler

Clinical associates: John Abbott, Earl Kerby


Degree offered: M.D.

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 Board certification in anatomic pathology, clinical pathology and neuropathology, and a postdoctoral training program in clinical chemistry.

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, zoology, and medical technology, and from students 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 one for medical and dental students, the other for medical technologists who wish to advance their training, usually by subspecialization in an area of laboratory medicine.

All 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 faculty members' research laboratories.

Advisor 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 departmental course requirements and giving examples of the major academic tracks is available on request.

Residency Program

The department is approved for 17 residency positions in pathology, covering a training span of up to five years. The programs are designed 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 biochemistry, medical microbiology, hematology, and blood bank. Adequate opportunity is afforded for the rotation among subspecialties as neuropathology, dermatopathology, and gastrointestinal pathology, and special pathology of the head and neck region.

To provide these special experiences, the faculty includes members who have special interest in blood coagulation and its disorders, and diseases of the nervous system, gastrointestinal tract, skin, lungs, hematopoietic tissues, head and neck regions, as well as medical microbiology, clinical biochemistry, hematology, and blood banking.

The department also offers a postdoctoral training program in clinical biochemistry for biochemical and chemical. This program is approved by the American Board of Clinical Chemistry.

In addition, the Department has a limited
number of externships and clerkships for predoctoral students.

Facilities
The department has laboratories equipped for histopathology, histotechnology, electron microscopy, tissue culture, special chemistry, virology, and blood coagulation. As well as the standard facilities for anatomic and clinical pathology. The Pathology Learning Center has areas for seminars, independent study, multimedia learning activities, and small group discussions.

Courses
60-1 Introduction to Medical Technology 5.0
Survey of the role of medical technologists in various laboratory settings and their responsibilities to the health care delivery system. Open to freshmen and junior medical technology students. Full-time fall semester.

60-19 Principles of Human Biology
Course emphasis on the functions, mechanisms, and characteristics of organs, and the ability to communicate these functions in common language. Open to graduate students in science, medical technology, and related programs. Full-time fall semester.

60-11 Medical Jurisprudence
An introduction to the legal and ethical considerations in the medical setting. Emphasis on patient rights, patient safety, and the legal implications of medical practice. Open to graduate students in science, medical technology, and related programs. Full-time fall semester.

60-61 Medical Ethics and Law
A study of the ethical principles and legal considerations in the medical setting. Emphasis on patient rights, patient safety, and the legal implications of medical practice. Open to graduate students in science, medical technology, and related programs. Full-time fall semester.

60-21 General Pathology for Medical Students
Detailed analysis of basic responses of host to the disease process, and the recognition of the disease process by the pathologist. Emphasis on the mechanisms, morphogenesis, and treatment of disease processes. Full-time medical students and graduate students by arrangement. Grad-level spring semester.

60-43 Systems Pathology for Medical Students
Comprehensive study of human disease by organ systems and various case problems utilizing anatomic and clinical laboratory observations. Full-time medical students and graduate students by arrangement.

60-44 Introduction to Human Pathology
An survey of human disease, including basic disease processes, common disease processes, and the recognition of disease processes. Open to first-year medical students and graduate students by arrangement. Full-time fall semester.

60-81 Medical Intensive Care
A study of the clinical problems encountered in the critical care setting. Emphasis on the management of critically ill patients. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-121 Research Methods for Medical Students
Theory and practice of experimental design, including statistics, experimental design, data analysis, and research ethics. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-41 Clinical Immunology
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time fall semester.

60-43 Clinical Immunology
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-44 Clinical Immunology
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-91 Pathology of Malignant Tumors
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-100 Pathology of Malignant Tumors
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-160 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-177 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

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60-240 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

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A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

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A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

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A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

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A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-320 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-330 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-340 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-350 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-360 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.

60-370 Medical Technology Practicum
A study of the principles of medical immunology and their applications in clinical medicine. Open to second-year medical students and graduate students by arrangement. Full-time spring semester.
pediatric section of 60.111 Introduction to Clinical Medicine. Didactic lectures and simulated physical examination of the newborn and toddler provide students with their initial pediatric infant contact. This includes history, physical signs, nutrition, appraisal of growth and development, and symptomatology of the newborn, toddler, and adolescent.

Inpatient service provides an opportunity for training in the complex problems of disease and critical illness. There are daily rounds involving general pediatrics and subspecialties. Challenging and interesting cases are presented to the staff for discussion of diagnosis and treatment.

Outpatient experience stresses principles and practices required for the maintenance of health in children—immunization, physical care, nutrition, mental hygiene, and utilization of public health facilities and referral agencies.

Graduate Program

The department offers an approved three-year residency program of high quality which meets the requirements for board eligibility in pediatrics.

Fellowships are available in all of the board approved subspecialties, as well as the major subdivisions of pediatrics. The programs are research and clinically oriented, encouraging development of knowledge and skill in the chosen discipline. Upon satisfactory completion of the program, residents meet the requirements for board eligibility in the subspecialty.

Facilities

The Department of Pediatrics is located at The University of Iowa Hospitals, with inpatient and outpatient areas immediately adjacent to faculty offices, the pediatric library, and Cardiac Catheterization Laboratory.

The inpatient service comprises more than 100 beds, and more than 21,000 patients per year are seen in the general, specialty, and continuing care clinics.

Laboratories performing both clinical and research studies are maintained within the department.

The Hospital School for Handicapped Children is available for the child with developmental disabilities, cerebral palsy, and mental retardation.

Courses

70:2 Clinical Pediatrics 5 cr.

Principles of care of health maintenance and treatment of acute and chronic diseases in children: infectious, immunizations, participation in patient care, daily rounds, ward work, assessment and evaluation, nutrition, behavior problems, and survey of important disorders affecting children. For fourth-year medical students.

70:3 Introduction to Medical Genetics 2 cr.

70:5 Heart, Blood, and Developmental 3 cr.

Four-week elective emphasizing 45-60 aspects of growth and pediatric nutrition, pharmacology and pharmacology including newer program, clinical approaches, and prevention of research activities, epidemiology.

70:6 Community Pediatrics-Iowa Methodist Hospital, Des Moines

Work in community-based hospital; experience in care of patient as seen to daily practice and in special problem referred to children's hospital.

70:7 Pediatric Behavior 3 cr.

Basic concepts of human behavior and clinical approach to psychosomatic problems and treatments seen in children.

70:7 Pediatric Neurology 3 cr.

Close work with interns and staff members, taking part in academic activities of this service, ordering appropriate examinations.

70:10 Pediatrics in Child Development 3 cr.

Screening tests for developmental and emotional problems in children; measurable skills as available in Iowa. Diagnostic and management problems.

70:10 Pediatrics in Child Development 3 cr.

Opportunity to participate in all child activities, observing central decision-making and being part of routine clinical activities. Emphasis on basic knowledge of pediatric diagnostic testing, age-related physical examination, and development of diagnostic children seen in pediatric behavior.

70:12 Pediatric Treatment Plan 3 cr.

Familiarization with educational techniques and management of children presenting behavioral problems.

70:12 Family-Centered Pediatrics 3 cr.

Familiarization with special needs of endocrine disorders, behavioral aspects of management of childhood disabilities.

70:12 Developmental Disabilities 3 cr.

Incorporates content with inpatient and outpatient patients and their families, clinical evaluation, patient counseling, therapy, and introduction to individuals with developmental disabilities.

70:17 Neonatal Intensive Care—West 3 cr.

Students work as part of the neonatal team in the Pediatric ICU with emphasis to the right of neonates. Students are assigned the intensive care nursery, assisting nurses in patient care and direct contact with families.

70:18 Pediatric Health and Behavior 3 cr.

Students work as part of the team caring for children, assigned cases with a focus on parent participation, supervision of residents and medical students, case management, patient satisfaction, and supervision of nurse and medical student.

70:19 Pediatrics in the Care of the Elderly 3 cr.

Students work as part of the care of the elder patient, wellness care, and evaluation of the elderly patient. Students are assigned cases with a focus on parent participation, supervision of residents and medical students, case management, patient satisfaction, and supervision of nurse and medical student.

70:20 Pediatric Care of the Elderly 3 cr.

Students work as part of the care of the elder patient, wellness care, and evaluation of the elderly patient. Students are assigned cases with a focus on parent participation, supervision of residents and medical students, case management, patient satisfaction, and supervision of nurse and medical student.

70:21 Community Pediatrics 3 cr.

Opportunity to participate in all child activities, observing central decision-making and being part of routine clinical activities. Emphasis on basic knowledge of pediatric diagnostic testing, age-related physical examination, and development of diagnostic children seen in pediatric behavior.

70:22 Pediatric Instruction—West 3 cr.

Familiarization with educational techniques and management of children presenting behavioral problems.

70:22 Family-Centered Pediatrics 3 cr.

Familiarization with special needs of endocrine disorders, behavioral aspects of management of childhood disabilities.

70:22 Developmental Disabilities 3 cr.

Incorporates content with inpatient and outpatient patients and their families, clinical evaluation, patient counseling, therapy, and introduction to individuals with developmental disabilities.

70:27 Neonatal Intensive Care—West 3 cr.

Students work as part of the neonatal team in the Pediatric ICU with emphasis to the right of neonates. Students are assigned the intensive care nursery, assisting nurses in patient care and direct contact with families.

70:28 Pediatric Health and Behavior 3 cr.

Students work as part of the team caring for children, assigned cases with a focus on parent participation, supervision of residents and medical students, case management, patient satisfaction, and supervision of nurse and medical student.

70:29 Pediatrics in the Care of the Elderly 3 cr.

Students work as part of the care of the elder patient, wellness care, and evaluation of the elderly patient. Students are assigned cases with a focus on parent participation, supervision of residents and medical students, case management, patient satisfaction, and supervision of nurse and medical student.

70:30 Pediatric Care of the Elderly 3 cr.

Students work as part of the care of the elder patient, wellness care, and evaluation of the elderly patient. Students are assigned cases with a focus on parent participation, supervision of residents and medical students, case management, patient satisfaction, and supervision of nurse and medical student.

70:31 Community Pediatrics 3 cr.

Opportunity to participate in all child activities, observing central decision-making and being part of routine clinical activities. Emphasis on basic knowledge of pediatric diagnostic testing, age-related physical examination, and development of diagnostic children seen in pediatric behavior.

70:32 Pediatric Instruction—West 3 cr.

Familiarization with educational techniques and management of children presenting behavioral problems.

70:32 Family-Centered Pediatrics 3 cr.

Familiarization with special needs of endocrine disorders, behavioral aspects of management of childhood disabilities.

70:32 Developmental Disabilities 3 cr.

Incorporates content with inpatient and outpatient patients and their families, clinical evaluation, patient counseling, therapy, and introduction to individuals with developmental disabilities.

70:37 Neonatal Intensive Care—West 3 cr.

Students work as part of the neonatal team in the Pediatric ICU with emphasis to the right of neonates. Students are assigned the intensive care nursery, assisting nurses in patient care and direct contact with families.
Pharmacology

Department head: J.P. Long
associate professors Anne Adrian, Reufer Bleiniager, David Delcourt, Thomas Bivins
associate professor Giny Ootou
Departmental office: 1446 South

The department provides professional training in pharmacology for health science students, offers a Master of Science program in clinical pharmacology and clinical toxicology for students with the M.D. degree, and offers a doctorate program in didactic and research experience.

For qualified graduate students, it offers research and training programs in biochemical pharmacology and toxicology, drug metabolism, central nervous system and autonomic pharmacology, and the pharmacology of the cardiovascular and renal systems.

The Toxicology Center is located primarily within the Department of Pharmacology, and the department is involved with other departments in such educational and research activities as the Neural and Behavioral Sciences Program, the Diabetes Center, and the Cardiovascular Center.

The department pioneered the offering of pharmacology to undergraduate students with little or no science background. The lecture and discussion sessions in 71:120 Drugs: Their Nature, Action, and Use emphasize the mechanisms of drug action and give students a background for rational decisions concerning the personal use of drugs.

The department offers research training in all areas of pharmacology and toxicology, at the predoctoral and postdoctoral levels. In preparation for career opportunities in teaching, government, and industry.

Pharmacology for graduate study include undergraduate background in chemistry, biology, and mathematics. The level of performance in undergraduate courses must be in the top quartile.

Master of Science

In cooperation with clinical departments in the College of Medicine, the Department of Pharmacology offers a Master of Science degree program in clinical pharmacology to applicants who already hold the Doctor of Medicine degree. The specific objective of this program is to provide increased emphasis on and training in the science of clinical pharmacology for residents in the various clinical specialties.

Completion of the M.S. program requires a minimum of two years. Satisfactory completion of the following core course is mandatory unless specifically waived by the Department of Pharmacology, faculty. Any of these course requirements may be waived at the request of the trainee if he or she is asked by his or her adviser agrees that the trainee has met satisfactorily at a prior time.


The trainee may audit 71:105 Pharmacology for Health Sciences: Medical, and may take additional courses appropriate to his or her program, including:


Courses in other departments

Eligibility for the M.S. degree in pharmacology also requires demonstrated proficiency in basic research, satisfactory performance on the qualifying examination (written and oral), and satisfactory preparation and defense of a thesis.

Doctor of Philosophy

Course requirements for the Ph.D. in pharmacology are as follows:

71:100 Chemobiodynamics 99:120 The Chemistry of Biological Materials and/or

The student must complete at least one additional course in his or her area of interest and individual faculty research advisors may require more than one.

There is no departmental foreign language requirement.

Students are encouraged to obtain a maximum of laboratory research experience during the first two years.

After successful completion of the Ph.D. comprehensive exam, usually at the end of two and one-half years, the student begins or continues his or her Ph.D. thesis research. Thesis research usually requires two years beyond the comprehensive examination. Satisfactory preparation and oral defense of the thesis complete the program.
Admission
An applicant for graduate admission must have completed undergraduate studies in an accredited institution and have an overall grade-point average of 3.0 and a science grade-point average of 3.5 or better on a 4.0 scale, coupled with strong performance on the Graduate Record Examination (GRE) Aptitude Test. The appropriate background for graduate study in physiology and biophysics includes an undergraduate major in one of the biological, chemical, physical, mathematica, or engineering sciences, with one or more years of coursework in biology, physics, chemistry (including physical chemistry), and calculus.

Courses
7521 Introduction to Human Physiology 4.5 h.
Basic concepts of human physiology. Offered fall semester. Prerequisites: 3735/3736 or equivalent; consent of course director.
75211 Cell Biology 3.5 h.
Physiology, biochemistry, structure, and regulation of the eukaryotic cell. Prerequisite: college biology, physics, calculus, general anatomy, and consent of instructor.
75218 Endocrinology for Medical Students 3.5 h.
Same as 10116.
75216 Physiological Psychology 4.5 h.
Principles of psychology and behavior, as related to the functioning of the human organism. Prerequisite: college biology; consent of instructor.
75217 Laboratory for Physiological Psychology 3 h.
Regulated for and limited to students in the Physiology for Physiological Psychology Students. Offered summer session.
75215 Animal Physiology 4.5 h.
Principles of physiology and behavior as related to the functioning of the human organism. Prerequisite: consent of instructor.
752151 Human Physiology for Physiological Psychology Students 3.5 h.
Regulated for and limited to students in the Physiology for Physiological Psychology Students. Offered summer session.
752158 Independent Study 3 h.
For students who are not candidates for advanced degrees in the Department of Physiology and Biophysics. Prerequisite: consent of the department. Offered fall and spring semesters.
75225 Exercise Physiology 4.5 h.
Basic concepts of exercise and exercise adaptation to exercise. Students require to register under 75210 for lectures. Offered fall semester. Prerequisite: graduate standing and consent of course director.
75226 Molecular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752244 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752245 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752255 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752235 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752225 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752215 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752205 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752295 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
752285 Cellular Endocrinology 3.5 h.
Mechanisms of action of hormones, including effects on cyclic AMP function, intermediary metabolism, and cellular metabolism. Prerequisite: consent of course director. Same as 10225.
Preventive Medicine and Environmental Health

Department head: Peter Joesten

Preventive medicine relates to the individual patient when knowledge and techniques from biological, medical, asexual, and behavioral sciences 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.

Environmental health is the study of the control of the physical, biological, and social factors of the environment and the manner in which they influence the health of the individual or groups of individuals.

The department offers courses in many areas of preventive medicine and public health, including epidemiology and communicable disease control, institutional and food sanitation, industrial hygiene, biometry, health services research, comparative medicine, agricultural medicine, and many other areas related to the health of communities. Many graduates of the department have gone on to national and international achievement in public health work.

The department sponsored the development of the Institute of Agricultural Medicine, the first agency in the western hemisphere dedicated to the study of the occupational health problems of the agricultural worker. The varied programs of the institute provide practical training for students of the health professions as well as for medical students at the graduate and postgraduate levels, and reflect a special interest in our rural environment.

The department has an expanded and comprehensive biostatistics program, which offers both graduate and undergraduate instruction. Besides individual research in statistical methodology, the department participates in extensive collaborative programs with other departments, particularly in the College of Medicine. Departmental programs are enhanced through affiliations with the Hygienic Laboratory, Environmental Health Service, Student Health Service, College of Engineering, Health Services Research Center, and many regional health care delivery programs.

Medical epidemiology, while also linked to the clinical activities in the University Hospitals and Clinics, is primarily oriented toward the community. Teaching and research are concerned with basic epidemiologic methods, but the emphasis is on application to community health problems. Areas of specific interest include the organization and delivery of health services, the description, etiology, and control of acute communicable and chronic diseases, as well as clinical epidemiology. There is a special emphasis within the department on the epidemiology of cardiovascular diseases and cancer.

Examples of specific ongoing programs include assistance in the development of evaluation of rural primary care health centers, conduct of a summer medical student primary care program for migrant farm workers, surveys of health service utilization behavior in Iowa communities, cardiovascular disease and hypertension screening programs, cancer epidemiology through the Iowa State Cancer Registry and the Iowa Cancer Epidemiology Research Center (both based within the department), the epidemiology of cardiovascular disease associated with enteropathogenic E. coli, major participation in evaluation of health services research activities on a University-wide basis, the study of the health effects of pesticides, and the study in agricultural worker accidents and trauma. Completion of some epidemiologic problems is given widely in diverse areas of research and applied public health and community activities.

Graduate Programs

The master's program offers a degree with an emphasis on environmental health, biology, or a general track for those who are already health professionals. The Ph.D. program is available with an emphasis in epidemiology, biometry, and environmental health.

The department encourages development of interdisciplinary programs.

Institute of Agricultural Medicine

The Institute of Agricultural Medicine is housed in the Agricultural Medicine Research Facility on the Outisk Estate. Research, teaching, and extension activities are centered on the safety and health problems of rural lowwives. Areas of study include environmental toxicology, comparative medicine, occupational health, the Accident Prevention Laboratory, and the Iowa Pesticides Epidemiology Studies Center.

Financial Aid

A limited amount of financial assistance is available within the department.
Psychiatry

Department head: George Winfield
administrative assistant Nancy Andrews, Raymond Crow, Richard Purser, Pola Z. Voss, Henry Neestad, Vanderbilt Iowa, K. J. Wozny
assistant professor Howard Addy, Matthew Cohen, William Conner, Robert Smith, Conrad Swain
associate: Latino Tapi
clinical assistant professor Richard Reif, Neal Brown, John Gage, James Kennedy, Paul Pennington, Madam Taylor

denmark

The Department of Psychiatry is engaged in teaching medical students and training resident physicians for academic and clinical careers in psychiatry. It offers no degree program. The instruction of medical students occurs principally during their third year, in the course of a six-week clerkship. The department maintains a four-year training program approved by the Residency Review Committee of the American Medical Association. Training experiences are available at The University of Iowa Hospitals and Clinics and at the Iowa City Veterans Administration Medical Center. Additional experiences are available at the Presbyterian Hospital and on the Women’s Hospital. The Iowa City Veterans Administration Medical Center at Oakdale, the Mid-Eastern Iowa Community Mental Health Center in Iowa City, and the Mental Health Institute at Independence, Iowa.

The department offers an approved two-year program in child psychiatry.

The department staff is actively involved in genetic and family studies or psychological disorders, and includes a number of experts in the fields of genetic and biological psychiatry and neurochemistry. A variety of opportunities is available for students and residents to participate in research. The basic science areas of neuropsychology, neurophysiology, and electrophysiology offer additional opportunities for students and residents.
for special study and research. The clinical areas of psychiatry, child psychiatry, and group psychotherapy also offer opportunities to a limited number of students for research and further study.

Courses
710-100 Psychiatry for Physicians' Medical Students an.
710-101 Psychopathology Elective for Physicians' Medical Students an.
71329 Research in Psychiatry an.
Medical students, graduate students, and physicians who have had training in clinical methodology are admitted for special investigations in biological or psychological problems related to psychiatry.
710-100 Problems in Psychiatry an.

Courses Open Only to Medical Students
710 Global Psychiatry 4 a.h.
Under medical students.
710 J General Hospital Psychiatry an.
Psychiatric Consultation 3 a.h., University Hospitals and Clinics.
710-100 Psychiatrists' Seminar of Children under Adolescence, Independence, Iowa an.
713 Adult Psychiatry, Psychiatric Hospital an.
713 Hospital Psychiatry, Iowa City an.
713 Child Psychiatry, Psychiatric Hospital, Children's Service an.
713 Advanced Cardiac Child Psychiatry an.
Neuropsychiatry and psychopathology of adolescent and adult psychiatric disorders, emphasizing techniques of assessment and treatment of psychiatric illness in the cardiac patient.
715 Emergency Nurse Psychiatry, Brandonie Hospital, Joliet Illinois 4.5 a.h.
713 Advanced Emergency Psychiatry an.
Common psychiatric disorders of emergency room patients and their management, including techniques of rapid consultation and treatment of psychiatric emergencies by community agencies.
713 Consultative Child Psychiatry an.
Role of the psychiatrist in a consultation service.
713 Consultative Psychiatry, Iowa Methodist Medical Faculty, Omaha, Iowa an.
7136 Advanced Proctorship in State Hospital Psychiatry an.
713 Hospital in Clinical Medicine 1 a.h.

711-106 Research Psychiatry an.
Basic medical students may obtain experience and training in practical application of scientific methodology to solving problems in psychiatry through a contract research project in the Psychiatric Hospital or in affiliated and cooperating research centers.
713 Research Psychiatry of Campus an.
Experiential work for 710-106, except to special arrangement of research centers off campus, in this country and abroad.

Radiation Biology
Program director: James W. Daynes an.
Department chairman: W.H. Ph.D.
The program provides in-depth training and research experience in the study of the physical, chemical, and biological effects of radiation and the theory and widespread application of radiobiology methodology. The program stresses the importance of these areas to scientific research, clinical medicine, and the general public.

Undergraduate Study
Two courses: 770-103 Introduction to Radiobiology and Radiology and 770-108 Environmental and Radiological Health, Physics, are open to undergraduate students in liberal arts or professional colleges. These courses should be of interest to students who plan to enter medicine, nuclear medicine technology, environmental health, or similar programs.

Graduate Programs
The M.S. Program in radiation biology emphasizes the technical aspects and serves well as a minor field for students whose major interests are in another, related field.
The Ph.D. program is open to graduate students with a background in study in physics, chemistry, mathematics, biology, health sciences, veterinary medicine, or engineering. Ordinarily, the M.S. in this or a related field is required in addition 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 need to emphasize training in physical

Special Programs
Postdoctoral training is available by arrangement with the chairperson and individual faculty members.

Facilities
The Radiation Research Laboratory has a variety of radiation detectors and counters, including liquid scintillation counters and a small animal whole-body counter.
The laboratory also has an electron spin resonance spectrometer, an ultraviolet spectrophotometer, an automatic cell counter and particle size, and facilities for preparing histological sections of tissues-

Three a.h.-conditioned rooms provide convenient housing for the small laboratory animals used in research and teaching.
to medical students and qualified students in associated health sciences.

The student in surgery develops awareness of surgical therapy's place in the treatment of disease. Emphasis is placed upon basic knowledge of techniques, traumatology, oncology, burns, gastrointestinal and biliary tract diseases, endocrine disease, transplantation, plastic surgery and reconstruction, peripheral vascular surgery, thoracic and cardiovascular surgery, and neurosurgery.

A majority of the courses involve patient-centered discussions and practical exercises interspersed with operating room experiences. Lectures and conferences are regularly scheduled on specific topics.

Special courses in selected topics of surgical research, independent study, and clinical experiences are available to individual fourth-year students with special arrangement with the faculty.

Faculty

Special faculty strengths are centered in the fields of pathophysiology and problems of severe burns, organ transplantation, the surgical control of morbid obesity, inflammatory bowel disease, biliary tract disease, pediatric urology, and plastic surgery. The thoracic-cardiovascular and neurological surgical teams have special expertise in the clinical management of the spectrum of diseases in their specialties.

Facilities

The department has more than adequate numbers of patients with a wide variety of surgical diseases for teaching. Special areas include the only burn unit of its kind in the state, which provides adequate patient material for both clinical and basic science research. Laboratories provide equipment, space, and technical expertise necessary to support teaching and a wide spectrum of clinical and scientific research. These laboratories include animal operating, please culture, gastroenterology, histology, perfusion vascular, transplantation, organ preservation, cardiovascular, and neurosurgery and oncology.

Courses

76:138 Basic Emergency Skills 0.5 cr.
Basic-fir troubleshoot course in emergency medical techniques, administered in emergency exercise and sector special.

76:150 Research Seminar 4 cr.
Clinical Surgery Seminar
Six-week course, required of junior surgical students. Students become active members of the surgical academic society and develop the ability to participate in the operating room, and help with elective and emergency care.

76:160 Emergency Room for Physician's Assistant Students 2 cr.

76:216 Advanced Emergency Medicine 4 cr.
Four-week course, including intensive instruction in acute management of cardiac, pulmonary, neurological, and musculoskeletal problems; includes lectures, computer simulations, and procedures training in the animal lab. Open to senior medical students, residents in emergency or primary care medicine.

76:217 Advanced Clinical Surgery 2 cr.
Students assume advanced responsibility for patient care on wards and in operating rooms as one of the members of the surgical team. Prerequisite: 75:2 and consent of instructor.

76:218 Minor Surgery (Elective) 1 cr.
Experiences for students interested in minor surgery.
Prerequisite: 75:2 and consent of instructor.

76:219 Minor Surgery 1 cr.
Experiences in minor surgery for medical students.
Prerequisite: 75:2 and consent of instructor.

76:221 Emergency Room for Physicists 6 cr.
Prerequisite: Medical students.

76:222 Emergency Room for Conversion 6 cr.
Prerequisite: Medical students.

76:227 Emergency Room for Physicians 6 cr.
Prerequisite: Medical students.

76:228 Emergency Room for PAs 6 cr.
Prerequisite: Medical students.

76:230 Burn Therapy 1 cr.
Prerequisite: Consent of instructor.

76:241 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:242 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:243 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:244 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:245 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:246 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:247 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:248 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:249 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:250 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:251 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:252 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

76:253 Advanced Emergency Medicine 4 cr.
Advanced emergency medicine for medical students in training.
Prerequisite: 75:2 and consent of instructor.

Urology

Department head: David A. Culb
Faculty: professors David A. Culb, Charles E. Hadley
Professor Emeritus Raymond G. Sprague
associate professor William N. Bowey
staff assistant Benjamin F. Sisters, Walter G. Shih

In addition to the areas of urinary tract stones, urinary tract infections, diagnostic urology, and the results of urinary tract obstruction, urology also includes urological nephrology, dialysis, transplantation, urologic oncology, prostatic endocrinology, and pediatric urology.

The Department of Urology at The University of Iowa College of Medicine offers courses in all these fields, at this undergraduate and graduate level in continuing education for the delivery of urologic care.

In the M.D. 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 participiates very actively in 50:111 Introduction to Clinical Medicine, which covers 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 female child.

In the third and fourth years of the curriculum in medicine, the department offers courses in diagnostic urology, urodynamic urology, urological oncology, and the entire field of urology: in the required third-year clerkship, the department offers the basics of live material, and in the fourth year it offers 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, reconstructive urology, 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 urology research areas. The department offers special elective courses in these areas.

Courses

78:104 Clinical Urology 3.0h.
Invasive inpatient courses of study on urology topics; 10-15 students per day; preclinical urology patients are included in clinical care under supervision of residents.

78:108 Advanced Clerkship in Urology 4.0h.
Student comprises integral member of urologic staff, usually assigned to one department per six weeks, exposed to interventionist department, under direct supervision of attending urologist.

78:109 Advanced Clerkship in Urology 4.0h.
78:110 Individual Study and Research 4.0h.
Individual projects, either clinical or research, conducted in class member, urological junior staff, and, where applicable, a member of another clinical department or preventive department. Upon completion of project, the student presents a paper at the Annual Urology Seminar.

78:111 Urology Seminar 4.0h.
Field of department, Urology and Radiology, where indications, complications, complications, and techniques of uro violations and oncology procedures are presented and department; practice in urology.

of time provided, course members attend all experimental conferences.

78:112 Biochemistry and Pathology 4.0h.
Participation with Pathology and radiology departments in study of morphologic material. Includes microscopic examination and related procedures, including: study of cellular pathologic material, both gross and microscopic; studies from associated intramural departments.

78:114 Prostatic Diseases 4.0h.
Preclinical clerkship; special study of prostatic diseases; arrangements made to provide experience in appropriate urologic research in urology or prostatic. Special related projects of individual interest may be arranged; clinical material with prostatic disease assigned as available.

78:116 Clinical Urology 4.0h.
Preclinical clerkship in urology and urology and management of all types of urologic problems. Participation in departmental and research in prostatic diseases is expected. A combination of clinical and research experience is expected. The combination of these courses, taken together, permits an exposure to both preclinical and clinical problems.

78:156 Urologic Surgery and Gerontology 4.0h.
Experiences with current status of problems in the clinical setting; essential personnel, assessment and management of clinical problems (case studies) in evaluation of urologic problems.

78:158 Urology Elective for Proctor's Assistant 4.0h.
78:160 Special Studies on Campus 4.0h.
Individual arranges with student with the approval of the department.

78:161 Special Studies on Campus 4.0h.
Individual project or clinical project conducted by the student under the supervision of urological junior staff, and, where applicable, a member of another clinical department or preventive department. Upon completion of project, the student provides a paper at the Annual Urology Seminar.
College of Nursing

The College of Nursing is an integral part of the University Health Center, sharing in and contributing to teaching, research, and patient care resources which have earned international recognition. This provides unusually fine setting for college preparation for nursing, because the educational and clinical resources which are needed to educate nurses are available on or near 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 bachelor's degree and graduate programs are accredited by the Department of Recreation 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 license examination required for practice as registered nurses.

Undergraduate Program

Men and women educated as professional nurses are in demand and 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, the Red Cross, home and foreign missions, youth groups, 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 hospital and community settings as public health services, schools, and industries. In addition, it provides the essential base for graduate study in nursing.

In addition to the advantages of combining general education with specific career preparation, a college or university program offers the advantages—hardly less important—or fail participation in the social, cultural, and recreational activities of a highly diversified campus community. In nursing life is less than in other pursuits, a college or university background enables many young people not only to realize their highest career potentials, but to achieve the greatest measure of self-fulfillment in life.

The baccalaureate program is designed to provide both liberal and professional education. The basic 120-semester-hour program consists of 38 semester hours of general education courses, 40 semester hours of supportive prerequisite courses, and 50 semester hours of coursework in nursing. Entrance in the fall of the year is required. A second semester in the nursing core course is not guaranteed. Therefore, most students complete the program in four academic years and one summer session.

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 acute ill. The curriculum provides for nursing electives and permits the selection of an area for beginning concentrations in the senior year.
Approaches to the College of Nursing

The student may complete the entire program at Iowa, enrolling the first year in 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.

Cooperating state institutions in the two-year transfer plan include Iowa State University, the University of Northern Iowa, and Upper Iowa, Luther College, Simpson, Wartburg, and Otterbein Heights colleges. Participating community colleges are located in Mosaic City, Marshalltown, Muscatine, Clinton, Iowa Falls, Ankeny, Boone, and Fort Dodge. Completion of the two-year transfer sequence at a cooperating institution does not guarantee admission to the College of Nursing; admission standards for two-year transfers are the same as for all other College of Nursing applicants. Prospective two-year transfer students who need more information about the plan should contact the cooperating institution of their choice.

Registered Nurses

With some modifications, registered nurses who enroll in the baccalaureate program in nursing at Iowa complete the same liberal arts and science courses as students with previous nursing preparation. Registered nurses planning to enter the baccalaureate program at Iowa should obtain special information and advice from the College of Nursing.

Faculty Advisers

Advisers from the college are available to help prospective nursing students plan their programs, and each student in the college works with a faculty adviser.

Student Organizations

College of Nursing students have their own Association of Nursing Students and are also eligible for membership in the state and national associations of nursing students.

Expenses

Students pay the general University fees throughout the program, and purchase their own uniforms. The cost of a uniform order currently is about $270. Students must also purchase white shoes, a stethoscope, and a watch with a full sweep second hand. Students usually need to provide their own 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

There are no specific high school course requirements for admission to the College of Nursing, but the college strongly recommends four years of English, two years of history, two and one-half years of mathematics, and one year each of biology, chemistry, and physics, plus other college preparatory courses selected with the help of the high school counselor.

College Background

Applicants for admission to the undergraduate program in nursing must present a minimum of 30 semester hours completed at an accredited college, including two of the five required biological science courses and satisfaction of the following general education requirements:

- Rhetoric—8 semester hours (may be satisfied by tests for advanced standing; a student who has earned 8 semester hours of credit in English composition may substitute the speech component after admission to the University of Iowa; students transferring 40 or more semester hours of credits are exempt from the rhetoric requirement).

- Mathematics—Two and one-half years of high school mathematics, or a satisfactory score on the mathematics battery of the American College Tests, or completion of a college course in mathematics comparable to or higher than intermediate algebra (252 M).

- Chemistry—High school chemistry or its equivalent (if taken at the college level it may be included in the 30 semester hours required for admission).

- Physics—High school physics or its equivalent (if taken at the college level, it may be included in the 30 semester hours required for admission).

- Historical-cultural core—4 semester hours, and

- Literature core—4 semester hours.

Credits earned to satisfy the cultural-historical and literature core requirements may be included in the 30 semester hours presented for admission.

Preclinical Background

Including the biological science courses required for admission to the college, the student must satisfy the following requirements before beginning clinical nursing coursework:

- Animal biology 5 s.h.
- Chemistry (organic and biology) 5 s.h.
- Human anatomy 4 s.h.
- Human physiology 4 s.h.
- Microbiology 4 s.h.
- Nutrition 3 s.h.
- Psychology 4 s.h.
- Sociology 4 s.h.
- Anthropology 4 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 taken.

The American College Tests

All applicants for admission to the University of Iowa must complete the American College Tests. For information on the tests, write to the American
Selection Factors

Fulfilment 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 is required prior to final admission.

Application Deadlines

Applications must be received by March 15 for the fall semester, June 15 for the spring semester, and December 15 for the summer session.

Master of Arts

The University of Iowa Master of Arts program in nursing 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 allow for role development in a functional skill area related to their career goals. Since the approach to nursing specialization may be broad or narrow, the curriculum offers three 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 arrange for specific areas and types of field experiences to fulfill the practicum component of the specialization courses; through selection of relevant concepts to be developed in these courses; by selection of specific courses in the supporting areas; and through the problems they select for study in their thesis project.

Similarly, role preparation is available in three areas: education, administration, and advanced clinical practice. Because the curriculum is intended to be flexible enough to accommodate diverse student interests, the same type of tailoring is possible in the functional skill areas.

Students, for instance, may select all of their supporting coursework in administration or management in order to allow for maximum preparation in that functional skill area.

Although the course offerings by the College of Nursing emphasize a holistic approach to patients or clients, it is possible to concentrate in either the behavioral or biological dimension. Students interested in mental health nursing, for example, may select concepts, field experiences, and supporting coursework to expand their knowledge and skill in that area. Role preparation in advanced clinical practice with an emphasis on mental health nursing would further accommodate that interest area. The end result would be that, with the assistance of their academic advisors, 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

This 45-semester-hour curriculum will ordinarily require four semesters of full-time study for completion. Part-time study is possible, however. The student must maintain a 2.5 minimum grade-point average, and must successfully complete a written, comprehensive examination.

The master's degree curriculum is structured into five components:

Advanced nursing core (15 semester-hours): Coursework in the areas of conceptual and theoretical foundations for nursing (5 semester-hours), leadership in nursing practice (5 semester-hours), methods of nursing research (3 semester-hours), and a professional seminar (2 semester-hours).

Nursing specialization (9 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/public health nursing. Students may develop their areas of specialization through their choices of coursework or field work experiences. For example, students selecting adult health nursing as their area of specialization may choose experiences with patients in long-term care facilities, 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 advisors and with the approval of the graduate faculty.

Role development (6 semester-hours): Students may select administration, clinical practice, or education as skill areas. Students electing to develop skills for careers in clinical practice, for example, will enroll for 6 semester hours of advanced clinical practice, which is in addition to courses required for the nursing specialization component. Application experiences are included in this component. Students may select particular settings and/or preceptors compatible with their own career goals.

Supporting courses (9 semester-hours): Students may choose their supporting coursework in areas related to their nursing specialization or functional skill interests. Thesis (6 semester-hours): Every student is expected to write and successfully defend a thesis. This involves a systematic inquiry into a nursing problem by using methodologies as historical research, case studies, analytical literature reviews, surveys, or experimental studies which meet the requirements of the Graduate College.
First Year

Fall Semester
96:200 Conceptual and Theoretical Foundations for Nursing I 3 s.h.
96:204 Leadership in Nursing 3 s.h.
96:222 Advanced Concepts of Child Health Nursing I 3 s.h.
or
96:226 Advanced Concepts of Adult Health Nursing I 3 s.h.
or
96:254 Advanced Concepts of Community/Family Health Nursing I 3 s.h.
96:210 Methods of Research in Nursing 3 s.h.
or
*Supporting course 3 s.h.
Total 12 s.h.

Spring Semester
96:201 Conceptual and Theoretical Foundations for Nursing II 2 s.h.
96:205 Leadership Application in Nursing 2 s.h.
96:223 Advanced Concepts of Child Health Nursing II 3 s.h.
or
96:227 Advanced Concepts of Adult Health Nursing II 3 s.h.
or
96:335 Advanced Concepts of Community/Family Health Nursing II 3 s.h.
96:210 Methods of Research in Nursing 3 s.h.
or
*Supporting course 3 s.h.
96:208 Thesis Seminar 1 s.h.
Total 11 s.h.

Second Year
Fall semester
96:270 Selected Concepts and Applications in Advanced Nursing 3 s.h.
96:248 Nursing Education: Process, Roles, and Strategies 3 s.h.
or
96:260 Nursing Administration: Process, Roles, and Strategies 3 s.h.
or
96:266 Clinical Specialization: Process, Roles, and Strategies I 3 s.h.
*Supporting course 3 s.h.
96:200 Thesis 2 s.h.
Total 11 s.h.

Spring Semester
Role preparation course or *Supporting course 3 s.h.
96:200 Thesis 2 s.h.
96:206 Professional Seminar: Issues in Nursing 2 s.h.
Total 7 s.h.

*Students developing role skills in the areas of education or administration must fulfill specific prerequisites before registering for the courses offered by the College of Nursing. If they have not been taken for undergraduate credit, the prerequisites may offer partial fulfillment of the supporting coursework requirement. Students who elect the education option are required to have a basic course in educational psychology. Those who select administration are required to have a course in administrative or management theory.

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 2.5 minimum grade-point average for regular admission, 2.5 for conditional admission.

In addition to the general requirements for admission to the Graduate College, the College of Nursing requires that the applicant: Possess a bachelor’s degree with a major in nursing from a program accredited by the National League for Nursing; Fulfill the legal requirements for the practice of nursing in at least one state in the United States; Have an undergraduate grade-point average of at least 2.7 or demonstrate ability to do graduate work for regular admission, at least a 2.5 undergraduate grade-point average for conditional admission; Have recommendations from three persons familiar with his/her competency in the practice of nursing and potential for leadership and scholarship.

Submit the score from the Miller Analogies Test.
Submit a 600-word essay detailing career goals; and Have successfully completed a basic statistics course.

Applications for master’s degree candidacy are reviewed once a year for fall semester admission. The application deadline is March 15. By that date the admission committee will need all relevant examination materials, as listed above, in order to make a decision. Registration for coursework is possible in any term. However, initial enrollment in nursing courses which are ordered sequentially takes place in the fall semester.

All regulations of the Graduate College pertaining to academic standing, probation, and dismissal are applicable to graduate students in nursing. "Transfer credits applicable to the master’s degree program are limited, and must be approved by the dean for the graduate program in nursing and by the student’s co-advisor.

Admission as a professional improvement student

Some nurses may wish to take coursework at the University to fulfill the objective of professional or personal improvement only. Such individuals may request admission in the professional improvement category. This admission status will allow the student to take some graduate courses in the University without commitment to a degree objective.

Admission as a professional improvement student restricts a formal application. This includes submission of three recommendations and all academic transcripts. Application deadlines are July 10 for admission in the fall semester, December 1 for admission in the spring semester, and
May 1 for admission in the summer semester.

Since acceptance as a professional improvement student has no direct bearing on acceptance as a master's candidate, professional improvement students are required to follow the registration procedure described in the preceding section if they wish to seek admission as a master's degree candidate. Only 5 semester hours, or one required nursing core course, taken under professional improvement status may transfer to the M.A. requirements.

Continuing Education

Through its Department of Continuing Nursing Education, the college offers nonacademic, short-term programs for registered nurses. Programs are scheduled on campus and at community sites throughout Iowa. Continuing education units (CEUs) are awarded for each offering on the basis of one unit per 10 semester hours of instruction. Continuing Nursing Education is an Iowa Board of Nursing approved provider number 1.

Pediatric Nurse Practitioner Training Program

This certificate program, offered jointly by the Department of Pediatrics of the College of Medicine and the College of Nursing, prepares graduates to function as pediatric nurse practitioners in an expeditiously role in child health care teams, in clinics and in private pediatricians' offices. Program requirements are:

60:142 Seminar for Pediatric Nurse Practitioners 6 s.h.
70:100 Practicum for Pediatric Nurse Practitioners 8 s.h.

Clinical experience in the care of children is provided in The University of Iowa Hospitals and Clinics and under preceptors in the local setting. The program requires a minimum of one semester-on-campus study.

Admission

Applicants must be registered to practice professional nursing in Iowa (or be eligible for licensure by endorsement) and have one year of experience in child health care delivery. The general requirements for admission to the College of Nursing apply. Graduate students may enroll for the program as described either prior to or following the required courses in advanced nursing for children.

Facilities

The Nursing Building is centrally located on the University's main campus in close proximity to the curricula of Medicine, Pharmacy, and Dentistry: University Hospitals; the Basic Science Building; and the Health Sciences Library. Completed in 1971, the Nursing Building consists of five floors of varied and specialized facilities. Administrative offices are located on the first floor. Faculty offices are located on every floor except the second, which is utilized entirely for classrooms, laboratories, and the Learning Resource Center. Additional classrooms and laboratories are located throughout the building. Conference rooms, student lounges, and meeting rooms are conveniently located. Research facilities in the building provide quick access to computing/calculating equipment and programmable minicomputers.

Courses

Undergraduate

50:90 Introduction to Health and Health Care Settings 3 s.h.
50:91 Development of health and health care services, with emphasis on concepts and philosophy of health, various selected factors affecting health, current health care systems, and trends in health delivery systems.
50:92 Human Development and Behavior 3 s.h.
Developmental changes of human organism from conception through senescence. Psychological, social and medical aspects of human development. Emphasis on normal and abnormal development. Prerequisites: 21:1 or 31:1.
50:93 Nursing 3 s.h.
Psychological and social aspects of illness, observation and communication skills, effective nurse-patient relationships, increased self-confidence, students make inferences concerning diagnosis, development, and health, issues are discussed in relationship to the patient. Prerequisites: admission to the College of Nursing.
50:95 Nursing 4 s.h.
Psychological and psychosocial aspects of human sexuality are discussed. Emphasis is placed on the role of the nurse in teaching effective communication skills, relationship with the patient. Prerequisites: admission to the College of Nursing.
50:97 Nursing 6 s.h.
Introduction to psychiatric and behavioral aspects of mental illness; psychological and sociological aspects of mental illness. Prerequisites: admission to the College of Nursing.
50:101 Nursing 8 s.h.
Introduction to mental health and mental illness. Emphasis is placed on the role of the nurse in teaching effective communication skills, relationship with the patient. Prerequisites: admission to the College of Nursing.
50:103 Nursing 9 s.h.
Theory and clinical practice in psychosocial aspects of mental illness; psychological and sociological aspects of mental illness; theoretical knowledge and clinical practice in the diagnosis and treatment of mental illness. Prerequisites: admission to the College of Nursing.
50:105 Nursing 11 s.h.
Theoretical knowledge and clinical practice in psychosocial aspects of mental illness; psychological and sociological aspects of mental illness; theoretical knowledge and clinical practice in the diagnosis and treatment of mental illness. Prerequisites: admission to the College of Nursing.
50:107 Nursing 13 s.h.
Theoretical knowledge and clinical practice in psychosocial aspects of mental illness; psychological and sociological aspects of mental illness; theoretical knowledge and clinical practice in the diagnosis and treatment of mental illness. Prerequisites: admission to the College of Nursing.
College of Pharmacy

The pharmaceutical sciences are concerned with the preparation and dispensing of medicinal products and monitoring their activity. 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 trends for the strength, purity, and efficacy of drug products. The pharmacist is a preparer to compound and dispense prescriptions written by health practitioners, who rely on the pharmacist for information about various drugs—their availability, activity, toxicity, contraindications, etc.

Nestly everyone is familiar with the community pharmacist and the pharmacy in which he or she practices. The size and type of practice may vary—community pharmacies may be large or small, operated by individuals or by corporations. The pharmacists who staff these pharmacies make up the majority of practitioners. Over 100,000 men and women practice in community pharmacies.

Another smaller group of pharmacists is employed in hospital pharmacy work. The government and other employers pharmacists in the Public Health Service, Veterans Administration, Food and Drug Administration, and armed forces.

Pharmaceutical industry is also an area where numerous pharmacists are employed. This includes pharmaceutical manufacturing, where pharmacists are found in various areas of research, development, manufacturing, control, marketing and advertising. In addition to these pharmacists, numerous others are employed in pharmaceutical sales.

Pharmacy training is especially valuable in 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 areas, including pharmacy technology, biopharmaceutics, medicinal chemistry and natural products, pharmaceutical economics, and clinical and hospital pharmacy.

The college of Liberal Arts, Business Administration, Law, and Medicine contribute to the education of pharmacy students by providing instruction in the physical sciences, basic medical sciences, business, law, and humanities.

Basicly, 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 in the sciences.

A student entering the college after two years of preprofessional study will complete the professional program in three years if the preprofessional study includes, in addition to the basic preprofessional requirements, at least eight semester hours of organic chemistry, 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 Examiners.
The professional curriculum includes a
minimum of 18 semester hours of
electives; eight of these must be taken in
the fourth professional year. By
choosing appropriate electives, the
student may focus on such special areas
as clinical or hospital pharmacy or
pregraduate study.

The Professional Curriculum

First Year
First Semester
46:13 Pharmacy Math 3 a.h.
37:13 Principles of Animal Biology 5 a.h.
4.121 Organic Chemistry I 3 a.h.
4.101 Elementary Quantitative Analysis 4 a.h.
Total 15 a.h.

Second Semester
46:14 Pharmacy: Orientation 2 a.h.
66:1 Principles of Economics 4 a.h.
4.122 Organic Chemistry II 3 a.h.
4.141 Intermediate Chemistry Laboratory I 2 a.h.
*65:102 Principles of Human Anatomy 3 a.h.
**Elective 3 a.h.
Total 11 a.h.

*Also offered first semester for students on a 2-3 program only.
**All semester hours of electives are
required, of which at least eight must
be taken in the P-4 year.

Second Year
First Semester
46:23 Pharmacology I 4 a.h.
99:162 Biochemistry for Pharmacy Students 4 a.h.
81:107 General Microbiology 4 a.h.
*60:103 Principles of Human Anatomy 3 a.h.
Total 15 a.h.

Second Semester
46:24 Pharmacology II 4 a.h.
46:128 Medicinal Chemistry: Natural Products I 4 a.h.
72:150 Intermediate Physiology 4 a.h.
Total 18 a.h.

*May be taken in second semester of
first year.

Third Year
First Semester
46:131 Medicinal Chemistry: Natural Products II 4 a.h.
69:203 Introduction to Human Pathology 4 a.h.
71:101 Pharmacology for Health Sciences: Pharmacy 5 a.h.
Total 16 a.h.

Second Semester
46:132 Medicinal Chemistry: Natural Products III 4 a.h.
71:103 Pharmacology and Toxicology 3 a.h.
46:38 Pharmacology II 3 a.h.
46:110 Clinical Pharmacy: Case Study 5 a.h.
*46:81 Clinical Pharmacy: Drug Information 2 a.h.
Total 15 a.h.

*May be taken in first semester of fourth year.

Fourth Year
First Semester
46:41 Jurisprudence 2 a.h.
46:42 Pharmacology IV 4 a.h.
*46:80 Clinical Pharmacy: Community Pharmacy 2 a.h.
46:81 Clinical Pharmacy: Drug Information 2 a.h.
46:111 Clinical Pharmacy: Therapeutics 2 a.h.
**Electives 4-6 a.h.
Total 18-18 a.h.

Each P-4 student must complete six clinical clerkships (usually 2 each semester). Two of these are required (46:80 and 46:81). Some of the remaining clerkships may be used to satisfy the P-4 electives.

Second Semester
46:112 Clinical Pharmacy: Community Pharmacy 2 a.h.
46:115 Clinical Pharmacy: Therapeutics II 2 a.h.
**Electives 0-9 a.h.
Total 12-14 a.h.

*May be taken in either semester.
**A minimum of 8 a.h. of electives must be taken in the P-4 year.

Professional Electives
46:48 Community Pharmacy Retailing 3 a.h.
46:50 Pharmacological Chemistry: Drug Analysis 3 a.h.
46:52 Senior Seminar 1 a.h.
46:54 Non-Prescription Drugs 2 a.h.
46:82 Clinical Pharmacy: Family Practice Therapeutics 2 a.h.
46:84 Hospital Pharmacy: Radiopharmacy 2 a.h.
46:86 Clinical Pharmacy: Surgical Therapeutics 3 a.h.
46:87 Clinical Pharmacy: Geriatric Therapeutics 2 a.h.
46:88 Clinical Pharmacy: Elective Clerkship 1-9 a.h.
46:101 Pharmacy: Projects 1-3 a.h.
46:103 Physical Pharmacy 3 a.h.
46:104 Pharmacokinetics and Biopharmaceutics 3 a.h.
46:105 Industrial Pharmacy Survey 2-3 a.h.
46:107 Hospital Pharmacy Survey 3 a.h.
46:108 Hospital Pharmacy Survey 3 a.h.
46:114 Advanced Clinical Pharmacy 4 a.h.
46:120 Clinical Pharmacy: Psychotherapeutics 4 a.h.
46:147 Introduction to Natural Product Research 1-2 a.h.
46:148 Introduction to Research 3 a.h.
46:144 Communications Skills for Pharmacists 3 a.h.

Graduation from the baccalaureate program in pharmacy requires the student to complete satisfactorily the required courses in addition to 10
Admission

Admission to the College of Pharmacy requires the following preprofessional coursework:
- Rhetoric: eight semester hours, or six hours of transfer credit in English composition and rhetoric, and two hours in speech.
- General chemistry: eight semester hours.
- Mathematics: three semester hours equivalent to analytic geometry or a higher mathematics course, calculus is suggested.
- Physics: a one- or two-semester course in basic physics. A one-year animal biology or zoology course may be substituted; physics will be taken in the first professional year.

Students who have minimal 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 (A=4.0) cumulative grade-point average on all college work attempted.

Fulfillment of these requirements does not ensure admission to the college.

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 or liberal arts college can complete the pharmacy program in three years if they have satisfactorily completed courses in organic chemistry, biology or zoology, ecology and quantitative analysis.

Students who plan to remain in a community college for two years before transferring to the college should consult the dean of the college concerning course requirements.

Transfer with Advanced Standing

Students transferring from other colleges of pharmacy accredited by the American Council on Pharmaceutical Education receive credit toward the Bachelor of Science degree in pharmacy for satisfactorily completed coursework 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 nonaccrediting 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 utilized by transfer toward the pharmacy degree.

Graduate Programs

The college has graduate programs in several areas. Master of Science and Doctor of Philosophy programs are available in medicinal chemistry, medicinal chemistry-natural products, and pharmaceutical economics. A Master of Science degree is available in clinical-pharmaceutical 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 college and universities, in government agencies, and in a number of health-related institutions and organizations.

The application deadlines, grade-point average for admission, GRE score and necessary letters of recommendation are the same as those of the Graduate College. The academic requirements for maintaining graduate registration are determined by individual divisions of the College of Pharmacy.

Facilities

The Pharmacy Building is located in the Health Center complex on the University's main campus, in close proximity to the colleges of Medicine, Nursing, and Dentistry; University Hospitals; the Basic Sciences Building; and the Health Sciences Library.

The Pharmacy Building is a five-story structure specifically designed to provide modern facilities for a comprehensive program of pharmacy education. In addition to classrooms, an auditorium, and learning resources center, the building houses well-equipped separate laboratories and a greenhouse for instruction at the undergraduate and graduate levels.

The college's extensive industrial pharmacy laboratory serves as a teaching aid as well as a service division of the college. Here undergraduate and graduate students have the opportunity to learn methods of large-scale pharmaceutical product development.

In the clinical pharmacy program, students work with other health professionals and have the opportunity to monitor drug therapy in hospitalized and non-hospitalized patients, under the supervision of clinical instructors in pharmacy, medicine, and dentistry. The various clerkships in which students are involved include many areas of the University and Veterans Administration hospitals, a community practice clinic at Oakdale, Mechanicsville, and Williamsburg; Iowa City Mercy Hospital; Mercy and St. Luke's Hospitals in Cedar Rapids; Scholl Hospital in Waterloo; the Community Health Care Clinic (Pediatrics) in Davenport; the State Medical, Social Security Institute of St. Raphael; the Iowa Medical Security Facility; selected community pharmacies and nursing homes; and the Iowa Drug Information Service.

Courses

Undergraduate

Baccalaureate and Pre-Pharmaceutical

114. Application of systems of 1000 and measures and mathematical calculation in pharmaceutical procedures and practices. Includes introductory lectures in pharmacy and the application to pharmaceutical problems.
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 internal departments and colleges of the University and by bringing the University generally into direct contact with the citizen." The division's organization and services include:

Center for Credit Programs

Correspondence Courses

Correspondence courses are available for credit toward a degree, for preparation for special occupations, or for self-improvement. Students resident at the University of Iowa must obtain the permission of the dean of their college to enroll in correspondence courses for degree credit. Correspondence study is offered in accounting, American studies, anthropology, business administration, chemistry, classics, economics, education, English, French, geography, Greek, history, home economics, journalism, Latin, letters, mathematics, music, physical education, police science, political science, psychology, religion, social work, sociology, Spanish, and speech and dramatic art.

There is a $5 enrollment fee. The course fee is $25 per semester hour. Fees are payable at the time of registration. A catalog including procedure and enrollment forms may be obtained from Correspondence Study, W400 East Hall.

In cooperation with the Department of Defense, the University offers many correspondence courses to men and women in the armed services. Armed services personnel should ask their education officer for information.

Veterans may enroll for correspondence courses concurrently with other academic study under Public Law 52-540. Veterans are referred to Veterans Affairs Office of the University.

Off-Campus Classes

The division offers off-campus classes in liberal arts, business administration, education, and engineering. Classes are scheduled at the request of public school officials, or where professional, industrial, or other qualified groups indicate a specific need for educational services. Courses offered in business administration and engineering are scheduled on a contractual basis; courses in liberal arts and education usually require a minimum of 20 enrollees. For information, write to the Center for Credit Programs, W400 East Hall.

Saturday and Evening Class Program

This program provides credit course offerings for part-time undergraduate, graduate, or unclassified students. Courses are offered from all schools and departments of the University. For a Saturday and Evening Class Program catalog, write to Saturday and Evening Class Program, W400 East Hall.

Bachelor of Liberal Studies Degree

The Bachelor of Liberal Studies degree is designed to serve adults who cannot attend college as full-time, on-campus students. Credit 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 newspaper, radio, and television courses. For information, write to the
Center for Credit Programs, W400 East Hall.

Education Tests

Standardized tests and scores developed at the University of Iowa are published and distributed on a nonprofit basis to schools, public agencies, and industrial firms in Iowa and throughout the nation. For catalogs, write to Education Tests, 220 East 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 nonresident adults and for administering the University's Continuing Education Unit (CEU) program. The center's primary goal is to enhance the usefulness of the University as a center of learning and to provide educational opportunities for people who are no longer full-time students but who seek new knowledge related to their jobs, professions, or special interests.

Each year more than 30,000 adults receive 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 marketing 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 education objectives specified for each program.

The director of conferences is responsible for approving and conducting or coordinating all conferences, institutes, short courses, and other noncredit continuing education offerings held in the Iowa Memorial Union or on other off-campus locations. All members of the faculty and staff who plan University conferences and other University-related group functions to be held on campus (or in the Iowa City-Coralville community) are expected to associate these activities through the conference center office and to utilize the conference facilities, dining services, and lodging accommodations at the Iowa Memorial Union, to the extent they are available and appropriate.

Adult Education

Noncredit Program

This open enrollment program provides a wide variety of noncredit short-course offerings of special interest to adults. Courses are normally conducted at the Iowa Memorial Union during evening hours by University-affiliated instructors. Continuing education units are awarded for course completion. For current offerings, contact the Center for Conferences and Institutes.

Radio Broadcasting Services

WUII and ISUP-FM serve the needs and interests of the people of eastern Iowa with 18 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), WUII contributes program materials to a national network of more than 200 non-commercial radio stations. The main studio and offices are located in 3300 Engineering Building, and a live copy of the station's Program Guide may be obtained by writing to that address.

Institute of Public Affairs

The mission of the Institute is to help improve state, city, and county governments in Iowa by serving as the primary research and continuing education link between the University and those governments. Services of the institute are available to state and local government agencies and to citizen groups interested in civic affairs. The institute has a full-time research and training staff. Through the institute, other resources of the University are applied to problems faced by Iowa public officials. The institute also works in close cooperation with organizations of public officials such as the League of Iowa Municipalities and the Iowa State Association of Counties.

The institute provides:

In-service training and continuing education services to public personnel, primarily managers and supervisors, offering a wide variety of courses and programs aimed at meeting individual and organization needs as well as professional goals; Research services, informational resources, and publications ranging from practical handbooks to issue papers; and Consultation services, ranging from answering "how-to" questions to serving on statewide government committees dealing with major concerns of state and local governments.

Bureau of Police Science

The bureau offers a series of law enforcement courses through correspondence study:

Psychological Investigation 3 hrs.

Investigation Procedures 3 hrs.

Traffic Control 3 hrs.

These courses are offered by correspondence only. In addition, the bureau offers a variety of services to law enforcement agencies, including service and promotional examinations, general administrative or specialized training, and specialized training programs. It also carries out research programs in areas of public safety upon request by the state, cities, and counties for law enforcement, personnel examinations, administrative surveys, and record services.

Iowa Community Service and Continuing Education Program

The Division of Continuing Education serves as administrative and recall agent for the Iowa Community Service and Continuing Education Program, a cooperative state-federal program to expand the continuing education services of colleges and universities toward solving community problems, meeting continuing education needs of adults, and planning for resource allocation.
Office of Community College Affairs

The Office of Community College Affairs (OCCA), which is closely aligned with the College of Education, is the liaison office between the University and Iowa's area community and vocational-technical colleges. In activities involving 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 liaison between the University and statewide professional educator associations as well as selected regional and national organizations, and conducts relevant research;
- 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 degree programs for community college personnel leading to state certification;
- Participates in state, regional, and national approval, accreditation, and certification 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; and
- Coordinates consultation and information services for community college transfer students who enroll in the University.

INPOD

The Iowa Network for Personal and Organizational Development (INPOD), staffed and administered by the Office of Community College Affairs, is a project of the Iowa Area Schools Consortium. INPOD is a state and regional reference and referral center for staff, faculty, and organizational development professionals, serving the fifteen Iowa Area Schools, Regent Universities, private higher educational institutions, public and private educational institutions, public agencies, business and labor. INPOD's resources include human, audio-visual, printed, packaged modules, and workshops. Periodic processing requests for information, INPOD also publishes a monthly calendar of training and development activities and a monthly newsletter.

Iowa Lakeside Laboratory

The Division of Continuing Education has general administrative supervision of the Iowa Lakeside Laboratory, a summer laboratory for the biological sciences in Lake Okoboji, 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.

Macbride Field Campus

The University hosts a branch of the U.S. Army Corps 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, and the other for University-wide activities. Developments in the area to date include provision of access roads, water supplies, electric power, maintenance storage facilities, a boat house and sitting facilities, field archery course, facilities for handicapped persons, and picnic area. A small nature lodge is available to school groups.

Audio/Visual Center

The mission of the Audiovisual Center is to assist the faculty and students in the improvement of the teaching-learning process throughout the effective use of educational media. To accomplish this objective, the Audiovisual Center provides assistance in instructional development, media production, and the utilization of audiovisual materials and equipment. These include:

Institutional 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 8mm newsreel films, available on campus without charge for instruction and current use activities, and for rental to off-campus requestors. Smaller collections of audio and video recordings, 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, slides, filmstrip, opaque, and overhead projectors; portable projection screens; audio tape recorders; record players; portable public-address systems; and display devices (exhibits, easels, boards). There is a nominal charge for projectionist services and for equipment requested for conferences and off-campus use. Repair service is available at a nominal charge for all AV equipment, including TV systems.
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—script, cinematography, editing, complete processing and printing laboratory
- Photography—portraits, passports, slide shows, filmstrips, 35mm slide duplication, complete printing and processing services
- Television—video production, color and black-and-white (1-inch and cassetté), systems design, equipment maintenance, portapak rental
- Fabrication—design and construction of displays, specialized audiovisual equipment and furniture

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: Mary Louise Peterson, Harlan
Ray V. Bailey, Millford
A. Jorgenson, Garrison
Constance Beil, Des Moines
S. J. Brownlee, Emmetsburg
Percy G. Harris, Cedar Rapids
Donald Shaw, Davenport
Arthur Nei, Carroll
Peter J. Weststrand, Essex
Executive secretary: R. Wayne Richey

Central Administration
President: Willard L. Boyd
Vice-President for Academic Affairs and
Dean of Faculties: Mary Brodbeck.
Vice-President for Educational
Development and Research and Dean of
the Graduate College: Duane C.
Spierstebach
Vice-President for Finance and
University Services: Randall P.
Bennison
Vice-President for Student Services and
Dean of Academic Affairs: Philip G.
Hubbard

Academic Affairs
Vice-President and Dean of Faculties:
Mary Brodbeck
College of Business
Administration
Dean: J. Richard Zecher
Industrial Relations Institute Director:
Anthony J. Sinicrope
Institute for Economic Research
Director: Gerald Barnard
Institute for Insurance Education and
Research Director: Emmett J. Vaughan
Institute for Entrepreneurial
Management: Clifford Baumbick
Labor Center: Emmett J. Vaughan
Management Center: Emmett J. Vaughan
College of Dentistry
Dean: James H. McLemore
Dows Institute for Dental Research
Director: lan MacKenzie
College of Education
Dean: Charles W. Case
Iowa Institute for School Executives
Director: George A. O'Meara
College of Engineering
Dean: Robert G. Hering
Institute of Hydraulic Research Director:
John F. Kennedy
Graduate College
Dean: Duane C. Spierstebach
Dean of Advanced Studies: Rudolph W.
Schutz
College of Law
Dean: N. William Henes
College of Liberal Arts
Dean: Howard Lozier
School of Art and Art History Director:
Wallace J. Tomasi
School of Journalism Director: Kenneth
Starck
School of Letters Acting Director:
Richard Lloyd-Jones
School of Library Science Acting
Director: Carl F. Ogren
School of Music Director: Marilyn F.
Samuel
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Boyle
School of Social Work Director: Ruth A.
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College of Medicine
Dean: John W. Eckstein
College of Nursing
Dean:
College of Pharmacy
Dean: Dale E. Wurster
Student Health
Director: Harley G. Fiddick
State Services for Crippled Children
Director: John C. MacQueen

General University
Alumni Association
Executive Director: Thomas Brown
University of Iowa Foundation
Executive Director: Darrell D. Wyrick
The following persons held University of Iowa faculty appointments with the rank of instructor, assistant professor, associate professor, or professor-May 1, 1990. In this listing, the year of first appointment follows the departmental identification, and the year of present appointment is given in parentheses. 


Abbout, Francine, Baccalaurère Christian Brothers' School (Egypt) 1948, F.N.S Cairo (Egypt) 1948, M.B.B.Ch. Ain Shams (Egypt) 1955; professor, Internal Medicine/Physiology and Biophysics, 1961 (1965)


Abou-Yousef, Monzer M., M.R., B.Ch. Cairo (Egypt) 1970; assistant professor, Radiology, 1980

Acevedo, Alejandro, B.S. Loyola (Louisiana) 1952, D.D.S. 1956; associate professor, Oral Surgery, 1976


Adams, C. Morris, B.A. Northern Iowa 1961, M.S.W. Nebraska 1968; adjunct instructor, School of Social Work, 1980


Alkin, Judith P., B.A. Oregon 1968, M.A. 1969, Ph.D. California (Berkeley) 1974; assistant professor, German, 1975


Alcorn, Marie O., B.S. Iowa State 1948, M.D. Creighton 1950; clinical assistant professor, Family Practice, 1975

Alden, L. Elizabeth, B.A. Lawrence 1941, M.A. Mills 1945, Ph.D. Wayne State 1960; associate professor, Home Economics, 1969

Alexander, Bruce, B.S. Drake 1974, Pharm.D. Minnesota 1976; clinical assistant professor, Pharmacy, 1974


Alexander, Michael R., B.S. University of the Pacific 1965, M.S. 1971;

McFarland, Gay E., M.S. Iowa State 1956; M.D. Iowa 1962, M.S. 1965; clinical associate professor, Otolaryngology and Maxillofacial Surgery, 1972 (1977)


McGee, Michael C., B.A. Butler 1965, M.A. Cornell 1967, Ph.D. Iowa 1974; associate professor, Communication and Theatre Arts, 1979


McCay, Kenneth H., M.D. Iowa 1952; clinical assistant professor, Surgery, 1976


McLaren, James A., B.S. Simpson 1939, B.S. Iowa 1940; assistant professor, Dental Surgery, 1972


Meed, Sidney E., A.B. Rutgers 1934, A.M. Chicago 1938, Ph.D. 1940; professor emeritus, School of Religion/History, 1964 (1972)


Meek, Edward S., M.B.Ch.B., St. Andrews' (Scotland) 1951; M.D. 1962; professor, Pathology/Opthalmology, 1970

Megill, Allan D., B.A. Saskatchewan (Canada) 1955; M.A. Toronto (Canada) 1960, Ph.D. Columbia 1976; assistant professor, history, 1974 (1979)


Melnick, March E., B.S. California (Los Angeles) 1968, Ph.D. 1978; associate professor, Physical Therapy, 1979


Merola, Carl E., B.S. Iowa 1921, M.S. 1922, E.E. 1925; professor emeritus, Information Engineering, 1925 (1968)


Mesoph, Ray D., B.S. Iowa 1956, M.S. 1975; assistant professor, Dental Hygiene 1965 (1975)


Milne, Frances K., B.S.N. Missouri (Columbia) 1911, M.S.N. Western Reserve 1974; assistant professor, Nursing, 1974 (1977)


Miller, Chester F., B.S. Iowa 1926, M.D. 1926; professor emeritus, Preventive Medicine and Environmental Health, 1926 (1969)

Miller, Donald J., M.D. San Diego State 1959, M.A. Southern California 1972; associate professor, Military Science, 1977


N.D. 1948; professor, Surgery, 1948
(1953)
Zke, Wilbur L., B.A. Houghton 1953,
M.D.C.M. McGill (Canada) 1953,
D.T.M.H. London (England) 1960;
associate professor, Surgery, 1969
(1979)
Zima, William J., B.A. Carthage 1947,
M.A. Iowa 1948; associate professor,
School of Journalism and Mass
Communication, 1954 (1973)
Zimmermann, Gerald N., B.A. Brown
1966, M.S. Southern Illinois 1971,
Ph.D. Iowa 1973; adjunct assistant
professor, Speech Pathology and
Audiology, 1977
Ziels, James H., B.S. College of St.
Thomas 1963, M.D. Iowa 1967; clinical
assistant professor, Pediatrics, 1975
Zivkovich, Veljko K., M.D. Belgrade
(Yugoslavia) 1963; clinical assistant
professor, Pediatrics, 1973
Zlatnik, Frank J., B.A. Carrollton 1952,
M.D. Cornell 1956; associate
professor, Obstetrics and Gynecology,
1975 (1979)
Zopfi, Louis C., Ph.G. Iowa 1926, B.S.
1936, M.S. 1939, D.Sc. Nebraska
1934, D.Sc. St. Louis College of
Pharmacy and Applied Science 1958,
D.Sc. Mercer 1971; professor emeritus,
Pharmacy, 1965 (1972)
Zuber, Ernie Y., Jr., B.B.A. Iowa 1961,
M.A. 1964, Ph.D. 1975; assistant
Zuehlke, Richard L., M.D. Michigan
1959; associate professor,
Dermatology, 1970 (1979)
Zurmushian, Marilyn, B.S. Ball State
1955, M.A. Haystack Mountain School
of Crafts 1963, Ed.D Pennsylvania
State 1970; associate professor,
School of Art and Art History/Early
Childhood and Elementary Education,
1974
Zweng, Marilyn J., B.S. Michigan State
1955, M.S. Wisconsin 1957, Ph.D.
1965; professor, Secondary
Education/Mathematics, 1965 (1972)
Iowa Administrative Code: Board of Regents

The following is extracted from the Board of Regents section of the Iowa Administrative Code as of March 18, 1980.

Residence

720—1.4(262)

Classification of residents and nonresidents for admission and fee purposes.

1.4(1) General.

Students enrolling at one or more of the state institutions shall be classified as resident or nonresident for academic, fee and tuition purposes by the registrar. The provisions shall be based upon information furnished by the student and all other relevant information. The registrar is authorized to require such written statements, affidavits, statements, or other evidence necessary to establish the domicile of a student. Inclusion proof of status, absence of county or state identification in the state, a student's statement evidence sufficient to establish that a student is exempt from paying the nonresident fee is upon the student.

For purposes of resident and nonresident classifications, the term "parents" as hereinafter used shall include legal guardians or others standing in lieu of parents in the case where legal custody of any other person by reason of adoption has been assigned to persons other than their parents.

1.4(2) Residence for tuition purposes.

Rules regarding residence for administrative fee and tuition payments are generally divided into two categories; (1) students who are under the age of eighteen and therefore are classified as either resident or nonresident, and (2) students who are at least eighteen years of age. The requirements in these categories are different. Domicile within the state must be established by the student as a fact permanent home and includes personal presence within the state. The two categories are discussed in more detail below.

1.4(3) Students who are minors.

The residence of a minor shall follow that of the parents of the minor. Exceptions to this are rare cases where enrollment can be proved beyond question. The residence of the father during life, if any, and after his death, the residence of the mother, is the residence of the unemancipated minor, or if the father and the mother have separate places of residence, the minor resides the residence of the parent with whom he or to whom he has been assigned by court order. The parents of a minor applying for admission will be considered residents of Iowa only if they have a domicile within the state at the time of the beginning of the semester, quarter or session in which the minor is first enrolled at an Iowa State University or the state University of Iowa, or Upper Iowa University at Northern Iowa, and if the parents maintain such domicile for purposes other than to qualify their child for resident tuition.

A minor admitted before his parents have moved to Iowa may be considered a resident at the beginning of the next semester, quarter or session in which the student is enrolled after the parents have a domicile in Iowa. A minor whose parents move their residence from Iowa to a location outside of Iowa shall be considered to be a nonresident at the beginning of the next semester, quarter or session in which the student is enrolled after the date of the parents' removal from Iowa.

A minor under legal guardianship shall not be granted resident status if the legal guardians of the minor intends to qualify the minor for resident status.

A minor living with parents having been employed by a relative or friend who is a resident of Iowa, but not the minor's legal guardian, is considered resident status if he has lived with the relative or friend at least three years prior to high school graduation.

1.4(4) Students over eighteen years of age and married students under eighteen years of age.

A student eighteen years of age or older and a married student under eighteen years of age shall be classified as resident if (a) the student's parent or parents were residents of the state at the time such student reached majority or were married and are not now domiciled in another state, or (b) the student is the primary student residing in the state of Iowa for at least thirty-six consecutive months immediately preceding the calendar month in which the student is enrolled.

A resident student shall be considered as a resident student in the state primarily to attend a college, but he is in the state primarily for purposes other than to attempt to qualify for resident status.

Any nonresident student who reaches eighteen years of age or is married while under eighteen years of age with a student at any school or college campus may claim the value of such status or both status by this state for admission or tuition payment purposes.
1.43 Guidelines

The following guidelines are used in determining the residence classification of a student for tuition purposes.

1. A nonresident student who is attending less than 12 credits per semester will be classified as a nonresident for tuition purposes.
2. A nonresident student who is attending 12 credits or more per semester will be classified as a resident for tuition purposes.
3. A nonresident student who is attending less than 12 credits per semester will be classified as a nonresident for tuition purposes.
4. A nonresident student who is attending 12 credits or more per semester will be classified as a resident for tuition purposes.

1.44 Guidelines

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3. A nonresident student who is attending less than 12 credits per semester will be classified as a nonresident for tuition purposes.
4. A nonresident student who is attending 12 credits or more per semester will be classified as a resident for tuition purposes.
1.47(1) Committee review.

The decision of the registrar on the residence of a student for admission, fees and tuition purposes may be appealed to the review committee. The meeting of the review committee may be appealed to the 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 or at the institution unless the person is a resident of or any affiliated organization for which an institution of any affiliated organization is located within the state board or at the institution of any affiliated organization. A transcript of a student who is the student of the student of a state board or at the institution of any affiliated organization may be submitted for any state board or at the institution of any affiliated organization.

A state board or at the institution may submit transcripts to any state board or at the institution of any affiliated organization for which an institution of any affiliated organization is located. A transcript of a student who is the student of the student of a state board or at the institution of any affiliated organization may be submitted for any state board or at the institution of any affiliated organization.

The student's residence is determined by the student's residence. The student's residence is determined by the student's residence. The student's residence is determined by the student's residence.

720—1.2(262) Admission of undergraduate students by transfer from other colleges.

1.2(1) Students from accredited colleges and universities.

Transcripts of work taken in accredited colleges or universities accredited by the North Central Association of Colleges and Secondary Schools or other recognized associations for schools may be submitted for admission to the student's residence. The student's residence is determined by the student's residence.
Supplemental Specific Rules for The University of Iowa

The following requirements are in addition to those given in regular text below:

720-2.2(262) Formal application for admission.

All applicants for admission to any college of The University of Iowa must submit a formal application for admission with the required official transcripts and other supporting materials 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.

Applications for admission to the College of Business Administration should be submitted to the Director of Admissions.

Applications are urged to apply as early as possible, since this will give the admissions committee more time to devote to each applicant.

Closing date for the receipt of applications is December 15 of each year. Admissions decisions will be mailed to students on or before the first day of classes.

The college will notify applicants of acceptance or refusal.

2.3(2) Requirements for admission.

For admission to the College of Business Administration an applicant must have:

a. Completed specific course work as prescribed by the faculty of the college.

b. Achieved satisfactory scores on the University’s required entrance examinations.

c. Obtained satisfactory grade point average on all courses undertaken, and on all courses undertaken at The University of Iowa, on all courses undertaken in business and economics applications from students who have met the entrance requirements of the college and who have completed the requirements for admission as specified above will be reviewed by the admissions committee of the college.

720-2.4(262) College of Dentistry.

2.4(1) Application for admission.

Prior to all inquiries regarding admission to the

720-2.4(262) College of Dentistry.

2.4(1) Application for admission.

Prior to all inquiries regarding admission to the

720-2.4(262) College of Dentistry.

2.4(1) Application for admission.

Prior to all inquiries regarding admission to the

720-2.4(262) College of Dentistry.

2.4(1) Application for admission.

Prior to all inquiries regarding admission to the
2.5(2) Admission of undergraduate students by transfer.
The applicant must submit a formal application and official transcript of college work. Each applicant should have:

a. Maintained satisfactory progress in mathematics.

b. Maintained satisfactory progress in all college work undertaken.

From applicants who do not meet the above requirements, the dean of admissions will review individual records and will offer probationary admission.

20 May 1984, amended March 10, 1986

720-2.6(262) Graduate College.

Graduate of any college or university accredited by regional accrediting associations may, if the applicant is of satisfactory standing, be admitted to the Graduate College. Admission to the Graduate College is not in lieu of advancement as a candidate for an advanced degree. Such acceptance is, therefore, contingent upon the candidate's performance of work and recommendation of the candidate by the dean of the Graduate College. The acceptance of a student as a degree candidate is determined upon the merits of each individual case.

A student who is within forty semester hours of having satisfied all the requirements for the baccalaureate degree at The University of Iowa may be given tentative admission to the Graduate College.

720-2.7(262) College of Medicine.

2.7(1) Application for admission.

Address all inquiries, including admission to the Director of Admissions, University of Iowa, Iowa City, Iowa 52242. Applications must be received at the College of Medicine by the second of the month prior to the semester for which admission is desired.

20 May 1984, amended 5/1/84, 12/14/86, 11/17/77

720-2.8(262) College of Medicine.

2.8(1) Application for admission.

Address all inquiries regarding admission to the Director of Admissions, University of Iowa, Iowa City, Iowa 52242. Applications must be received at the College of Medicine by the second of the month prior to the semester for which admission is desired.

Applications are reviewed as soon as possible. However, it is advisable to select at least one candidate to whom an interview is to be given at least two months prior to the time when a decision is to be made. The Dean of Admissions reserves the right to delay action on any application.

20 May 1984, amended 5/1/84, 12/14/86, 11/17/77
2.6(2) Admission to advanced standing.

If, after preparation to enter a college of medicine, a student would not meet advanced standing requirements, the student must enroll in other approved courses.

2.6(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 courses or by taking the necessary public and professional examination in the charge of the College.

2.70–2.9(262) College of Nursing.

Applications for admission to the College of Nursing should be submitted to the Dean of Admission. Applicants for admission to the graduate program in nursing must present a minimum of thirty semester hours completed in an accredited college. For admission to the College of Nursing, applicants must have:

a. Completed specific courses as prescribed by the faculty of the college. The director of admission will provide a list of the coursework required.

b. Completed the American College Tests.

c. Performed satisfactorily on all course examinations.

Applications from students who have minor deficiencies in meeting grade-point requirements or elective work in the field of nursing that will be recommended by the admissions committee of the college, and, upon favorable recommendation of the committee, such students may be granted temporary or probationary admission.

2.10(4) Required tests.

Applicants for admission are required to take the American College Testing Program tests.

2.10(5) Current requirements.

Applicants who have completed work in a college of pharmacy accredited by the American Council on Pharmaceutical Education may, if their college academic average is acceptable, be admitted and granted advanced standing toward the degree of Bachelor of Science in Pharmacy.

2.70–2.11(262) College of Liberal Arts.

Applicants for admission to Liberal Arts must meet the requirements of the three AA institutions in Iowa as listed in 302, 1-3(292) and 3, 1-3(292).

2.70–2.12(262) College of Education.

Students of the University desiring to teach in schools in Iowa are registered in the College of Liberal Arts or the Schools of Education. Requirements for permission to take teacher-training courses are set in the University Catalog.
Main Campus

Buildings
1. Afro-American Cultural Center (A-46)
2. Alumni Center (D-17)
3. Armstrong (D-14)
4. Art Building (C-71)
5. Baseball Bleachers (D-1)
6. Basic Science Building (C-52)
7. Calvin Hall (F-9)
8. Chemistry-Botany Building (E-9)
9. Chinese-Rcllve American Cultural Center (A-5)
10. Chilled Water Plant (S-3)
11. Coggins Center (Q-8)
12. College of Medicine Administration Building (Q-6)
13. Communications Center (S-8)
14. Dentistry Chapel (Q-7)
15. Dentistry Science Building (F-3)
16. Digital Library (A-10)
17. Don Hovey Hall (G-2)
18. Eames Hall (G-2)
19. Eastman (S-1)
20. Engineering Building (G-4)
21. English-Philosophy Building (C-17)
22. Field House (S-4)
23. General Store (G-9)
24. Gilmore Hall (F-9)
25. Gun-duct Service Building (directions E-22)
26. Haley Gymnasium (F-8)
27. Hancher Auditorium (S-8)
28. Nekaysen Court Apartments (directions E-2)
29. Nekaysen Drive Apartments (directions J-23)
30. Nekaysen Park (directions E-2)
31. Health Occupations Education (L-46)
32. Health Sciences Library (Q-4)
33. Hearing Center (Q-33)
34. History Archeology (S-3)
35. Hydrostatic Annex (L-7)
36. Hydrostatic Annex East (G-48)
37. Hydrostatic Laboratory (L-7)
38. International Center (S-25)
39. Iowa Memorial Union (F-8)
40.Jefferson Hall (G-10)
41. Jesse Hall (G-9)
42. Kresge Science Building (G-23)
43. Legion Shelf House (G-6)
44. Library Building (A-8)
45. Law Center (E-8)
46. Library (Q-26)
47. Lindquist Center (D-8)
48. Linn Hall (F-9)
49. MacLean Hall (G-5)
50. Medical Research Laboratories (G-5)
51. Medical Research Center (C-5)
52. Medical Research Facilities (G-5)
53. Museum of Art (D-7)
54. Musical Building (B-8)
55. North Hall (D-1)
56. Nursing Building (G-4)
57. Odyssey Hall (G-4)
58. Old Capitol (F-2)
59. Old Main Building (F-11)
60. Old Main Building (G-11)
61. Parks Laboratory (B-2)
62. Parks Laboratory (C-3)
63. Parks Laboratory (D-3)
64. Parks Laboratory (E-3)
65. Parks Laboratory (F-3)
66. Parks Laboratory (G-3)
67. Parks Laboratory (H-3)
68. Parks Laboratory (I-3)
69. Parks Laboratory (J-3)
70. Parks Laboratory (K-3)
71. Parks Laboratory (L-3)
72. Parks Laboratory (M-3)
73. Parks Laboratory (N-3)
74. Parks Laboratory (O-3)
75. Parks Laboratory (P-3)
76. Parks Laboratory (Q-3)
77. Parks Laboratory (R-3)
78. Parks Laboratory (S-3)
79. Parks Laboratory (T-3)
80. Parks Laboratory (U-3)
81. Parks Laboratory (V-3)
82. Parks Laboratory (W-3)
83. Parks Laboratory (X-3)
84. Parks Laboratory (Y-3)
85. Parks Laboratory (Z-3)
86. Parklawn Apartments (A-7)
87. Pharmacy Building (C-5)
88. Phelps Hall (F-10)
89. Physical Plant Offices (G-6)
90. Physical Plant Shop (G-4)
91. Physics Building (F-10)
92. Power Plant (A-7)
93. President's Residence (B-10)
94. Recreation Building (D-3)
95. Recreation Building (E-3)
96. Recreation Building (F-3)
97. Security Building (D-9)
98. Sensor Laboratories of Psychology (C-7)
99. State Historical Society (G-X)
100. Tennis Center (G-3)
101. Trowbridge Hall (C-5)
102. University Higdon Laboratory Annexes (J-4)
103. University Theatre (G-7)
104. Water Tower Plant (C-17)
105. Wayland-Johnson Speech and Hearing Center (C-3)
106. Women's Resource and Action Center (B-6)
107. Zoology Building (F-10)

Hospitals
108. Children's Hospital (A-6)
109. General Hospital (A-4)
110. Psychiatric Hospital (F-6)
111. Roy J. Carver Pavilion (G-4)
112. Veterans Administration Hospital (E-4)

Residence Halls
113. Burke (D-9)
114. Carter (D-9)
115. Daum (D-9)
116. Isom (D-9)
117. Quad (D-9)
118. Slater (D-9)
119. South Quad (D-10)
120. Stanley (D-9)
121. Westlawn (D-9)

Public Parking Ramps
122. Hospital Parking Ramp 1 (G-3)
123. Hospital Parking Ramp 2 (G-3)
124. Iowa Memorial Union Parking Ramp (E-2)

Oakdale Campus
125. Agricultural Medicine Research Facility (G-3)
126. Ames Extension (B-7)
127. Child Behavior and Development, Institute of (C-4)
128. Employment Building (C-3)
129. Hydrostatic Research Lab. (B-1)
130. Iowa Geological Survey (D-2)
131. Iowa Geological Survey (E-2)
132. Iowa Geological Survey (F-2)
133. Iowa Geological Survey (G-2)
134. Iowa Geological Survey (H-2)
135. Iowa Geological Survey (I-2)
136. Iowa Geological Survey (J-2)
137. Iowa Geological Survey (K-2)
138. Iowa Geological Survey (L-2)
139. Iowa Geological Survey (M-2)
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141. Iowa Geological Survey (O-2)
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146. Iowa Geological Survey (T-2)
147. Iowa Geological Survey (U-2)
148. Iowa Geological Survey (V-2)
149. Iowa Geological Survey (W-2)
150. Iowa Geological Survey (X-2)
151. Iowa Geological Survey (Y-2)
152. Iowa Geological Survey (Z-2)
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