

Colleges and Curricula

Undergraduate and Professional Degree Programs

The university is organized into eight colleges, including the Graduate College. Six colleges offer undergraduate degree programs, and the College of Veterinary Medicine offers the Doctor of Veterinary Medicine degree. For a listing of the more than 100 majors offered by the Graduate College, see the summary at the end of the Graduate College section of this publication.

Iowa State University is accredited by the Higher Learning Commission of the North Central Association.

Bachelor's Degree Requirements

To receive a degree, a student must meet the requirements of the curriculum in which the degree is to be awarded. Verification that the student has met those requirements is made by the dean of the college, who also has the authority to waive a requirement under exceptional circumstances.

A cumulative grade point average of at least 2.00 in all work taken at Iowa State University is required for graduation.

A student admitted as a transfer from another college or university is normally required to have a 2.00 cumulative average at the time of entrance. A student may, however, be admitted with a quality-point deficiency, but will be required to earn sufficient quality-points above a 2.00 at Iowa State to offset the quality-point deficiency at the time of entrance.

No more than 65 semester or 97 quarter credits earned at two-year colleges can be applied to a bachelor's degree from Iowa State University. There is no limit to the number of credits that may be transferred from a four-year institution.

A student who takes work at another college or university after having been enrolled at Iowa State must submit transcripts of all work attempted to the Office of Admissions at Iowa State. This work must average a 2.00 or the deficiency of quality points will be assessed against the student. Failure to submit such transcripts will be grounds for dismissal.

In unusual circumstances, the Academic Standards Committees of the respective colleges may review and give further consideration to the records of students who, except for grade-point average, have satisfactorily completed all graduation requirements. If the appropriate college Academic Standards Committee considers that the educational and professional needs of such a student have been satisfactorily met, or can be satisfactorily met by imposing further conditions, the committee may recommend to the dean of the college that the student be graduated or that a supplemental program be accepted in place of the fully unqualified grade point average. The college Academic Standards Committee chairperson reports such exceptional actions to the Faculty Senate Committee on Academic Standards and Admissions.

To qualify for a bachelor's degree, a student must take a minimum of 32 credits in residence at Iowa State University. Also required is that the last 32 credits must be taken in residence, although under special circumstances, with prior written approval of the student's major department, six of the last 32 credits may be transferred and applied toward a degree at Iowa State University.

A student may receive two bachelor's degrees if he or she meets the requirements of each curriculum and earns at least 30 credits beyond the requirements of the curriculum requiring the greater number of credits. Each degree program must be approved by the appropriate department chair or head.

A student fulfilling the requirements of two separate curricula in different colleges may, in certain cases, receive a degree from one of the colleges with double majors crossing college lines. The permission of both deans must be obtained and each degree program must be approved by the appropriate department and dean.

Undergraduate Certificates

All undergraduate certificates require at least 20 credits, including at least 12 credits taken at Iowa State University. At least 9 of the credits taken at Iowa State University must be in courses numbered 300 or above. The undergraduate certificate must include at least 9 credits that are not used to meet any other department, college, or university requirement except to satisfy the total credit requirement for graduation and to meet credit requirements in courses numbered 300 or above. Courses taken for an undergraduate certificate may not be taken on a pass-not pass basis. A cumulative grade point average of at least 2.00 is required in courses taken at Iowa State University for an undergraduate certificate. Specific requirements and/or restrictions are available from the department or

program offering the undergraduate certificate (see Index or individual colleges for information).

Communication Proficiency Policy

Basic Principles: The faculty of Iowa State University believe that all educated people should be able to communicate effectively in a variety of settings and media, including electronic. Consequently, Iowa State University graduates are expected to develop competence in three interrelated areas of communication: written, oral, and visual.

This communication competence can best be achieved through the following five principles:

- Communication instruction and practice are distributed over the student's entire undergraduate experience, both in and out of the classroom, from the first year through the senior year.
- Communication instruction and practice are distributed across the curriculum, both in communication courses and in courses in the student's major.
- Active learning and higher-order thinking are fostered through communication.
- Faculty across the university share responsibility for the student's progress in communication practices.
- Both faculty and students engage in ongoing assessment for continuous improvement of the student's communication practices.

Iowa State University's communication curriculum, based on these five principles, seeks to enrich the student's understanding of the various subjects studied as well as prepare the student to communicate successfully in professional, civic, and private life.

Foundation Courses

To ensure that broad communication competence is addressed and developed at the beginning of a university career, all students will earn six credits in the two-course introductory sequence (ENGL 150 Critical Thinking and Communication and ENGL 250 Written, Oral, Visual, and Electronic Composition), normally taken in the first and second years. Students will focus on writing and critical reading, with complementary instruction in visual, oral, and electronic communication; they will concentrate on civic and cultural themes; and they will enter work in a communication portfolio to document their current level of proficiency.

Upper-Level Curricula

Continuing development of communication skills will be directed by the student's major department. Using the university's basic principles as a guide, each department will specify a set of intended learning outcomes and design communication experiences by which students in the major can achieve the desired level of communication proficiency.

Departments may select from or combine a variety of communication options that best match their faculty, students, and curriculum:

- designated communication-intensive courses that integrate written, oral, and visual communication into a course in the major;
- a sequence of courses within the major that incorporates communication tasks of increasing complexity;
- linked courses—one in communication, one in the major—that integrate readings and assignments;
- advanced composition course(s) appropriate to the student's major and offering instruction in written, oral, and visual communication;
- communication-intensive activities within or beyond course work, such as communication portfolios, discipline- or course- specific student tutoring, community service projects, internships, electronic presentations, informational fairs, juried competitions, entrepreneurial projects, newsletters, Web sites.

Departments will retain the authority for regularly assessing the degree to which their students achieve the specified learning outcomes and for making curricular improvements based on departmental assessment data.

Non-Native Speakers of English: Students admitted to the university who are graduates from non-U.S. high schools and whose first language is not English are required to take the English Placement Test before the beginning of their first semester of enrollment as students at Iowa State. This requirement includes freshmen as well as those who have transferred credit from other institutions. The test is administered by the English Department and is offered before the beginning of each semester. Students whose performance on this placement examination is satisfactory will follow the regular university communication proficiency requirements. Students who have deficiencies will enroll in special English classes, as determined by the test results.

Library Study

Independent study and investigation through the use of books, journals, and libraries enable students to grow intellectually and professionally in college and afterward. For this reason, all students receive instruction in the use of the University Library, including practice in how to locate the published literature of their respective fields of study.

For undergraduate students, LIB 160 Information Literacy is a one-credit graduation requirement course that provides a foundation of information literacy and library research skills and concepts. Librarians also work each semester with ISU course instructors to teach course-related instruction sessions for undergraduate students in the effective use of library resources in course-relevant fields of study.

Each semester librarians work with ISU course instructors to teach course-related instruction sessions for graduate students in library research skills, information literacy concepts, and the effective use of library resources and research tools in course-relevant fields of study. For more information, call the Library at 515 294-4527.

U.S. Diversity and International Perspective Requirements

One of Iowa State University's goals is to prepare its students to meet the challenges of responsible citizenship and effective professional roles in a culturally diverse global community. To help achieve this goal, all undergraduate students must fulfill graduation requirements in two areas: U.S. Diversity and International Perspectives. The specific standards used to certify students' fulfillment of these requirements vary from major to major, but all require three credits of course work (or the equivalent in some alternative academic experience) for each of the requirements. In most cases, courses used to meet the U.S. Diversity and International Perspectives requirements can also be used to fulfill general education requirements of the student's college or requirements of the student's major. Students should consult with advisers for details of the requirements in particular majors.

The focus of the U.S. Diversity requirement is the multicultural society of the United States. Courses or alternative academic work used to meet the requirement address significant manifestations of human diversity and provide students with insights that enhance their understanding of diversity among people in the U.S.

Through completion of the U.S. Diversity requirement, students will achieve at least two learning outcomes such as those listed below.

Students will be able to:

- articulate how their personal life experiences and choices fit within the context of the larger mosaic of U.S. society, indicating how they have confronted and critically analyzed their perceptions and assumptions about diversity-related issues.
- analyze and evaluate the contributions of various underrepresented social groups in shaping the history and culture of the U.S.
- analyze individual and institutional forms of discrimination based on factors such as race, ethnicity, gender, religion, sexual orientation, class, etc.
- analyze the perspectives of groups and individuals affected by discrimination
- analyze how cultural diversity and cooperation among social groups affect U.S. society.

The focus of the International Perspectives requirement is the global community. Its objective is to promote students' understanding of cultural diversity and interdependence on a global scale. A period of immersion in a foreign culture is often a particularly effective way of meeting these objectives, so Iowa State University encourages the use of study-abroad experiences as a means of fulfilling the International Perspectives requirement. International students, because they are "studying abroad" from their home country's perspective, are normally deemed to have met the International Perspectives requirement. The International Perspective requirement shall be waived for U.S. military veterans who have completed at least three months of service stationed outside of the United States.

Through completion of the International Perspectives requirement, students will achieve at least two learning outcomes such as those listed below.

Students will be able to:

- analyze the accuracy and relevancy of their own worldviews and anticipate how people from other nations may perceive that worldview.
- describe and analyze how cultures and societies around the world are formed, are sustained, and evolve.
- analyze and evaluate the influence of global issues in their own lives.

- describe the values and perspectives of cultures other than their own and discuss how they influence individuals' perceptions of global issues and/or events.
- communicate competently in a second language.

Curriculum Requirements

The curriculum requirements, both in number of credit hours and specific courses, are guidelines for the student and his or her adviser in planning an academic program. The curriculum is subject to change and because of these changes, adjustments may need to be made.

Catalog in Effect

A student may choose to graduate under the catalog in effect at the time of graduation or a catalog for the previous five years, provided it covers a period of his or her enrollment. Full requirements of the chosen catalog must be met except that adjustments will be made in instances where courses are no longer available or where programs have been changed.

Special Programs

Honors Program

The Iowa State University Honors Program is designed for students who have demonstrated the ability and motivation to assume more than the usual responsibility for their undergraduate education. The program enables honors students to gain the maximum benefit from their undergraduate education.

Students who graduate in the Honors Program receive the honors designation on their transcripts and diplomas.

Special educational opportunities. Students in the Honors Program determine their educational objectives and devise an individualized program of study to meet them. An honors program may include substitutions for required courses, a combination of courses from several departments to form a new major or minor, Honors courses or seminars, independent study and research, and other forms of innovation. Information about honors courses and seminars for the current academic year can be obtained from the Honors Program Office, 2130 Jischke Honors Building.

Other benefits. Members of the Honors Program have 24-hour access to the Jischke Honors Building as a quiet place to study, use the computers, and visit with other honors students. Students also have off-campus opportunities such as attending honors semesters and conferences. Members receive extended loan privileges at the Library, priority scheduling, and the opportunity to apply for research funds.

ISU students who have a cumulative grade-point average of at least 3.5 become eligible to apply for admission to the Honors Program during their second semester in residence and continue to be eligible as long as they have at least 48 semester credits remaining before graduation. Transfer students with a G.P.A. of 3.5 or higher and more than 60 credits remaining are also eligible to apply.

First-Year Honors Program

Entering first-year students with outstanding high school records and academic ability may be eligible to participate in the First-Year Honors Program (FHP). The FHP, which introduces students to an honors education, consists of honors sections of English 250 and Library 160, an FHP seminar, and honors advisers. Students may also choose to participate in the Honors Mentor Program, which introduces students to scholarship and research. Participants are matched with faculty members conducting research in an areas of mutual interest. Admission to the FHP is limited, and is based on past academic achievement, potential, and interest in an honors education.

Further information concerning the University Honors Program and the First-Year Honors Program can be obtained from the Honors Program Office, 2130 Jischke Honors Building or www.honors.iastate.edu.

Dual-degree Programs

Students who complete the first three years in certain curricula at Iowa State and who satisfactorily complete the first year in a recognized medical, dental, veterinary medical, or law curriculum may then be awarded a bachelor's degree from Iowa State. (See Index, Preprofessional Study.)

Iowa Lakeside Laboratory

Iowa Lakeside Laboratory is an off-campus teaching and research facility situated on a 140-acre campus on West Okoboji Lake in Northwest Iowa. It is run cooperatively by Iowa State University, the University of Iowa, the University of Northern Iowa, and Drake University. Each summer Iowa State University students can take up to three undergraduate and/or graduate courses in archaeology, biology, ecology, environmental science, and/or geology for credit at Lakeside (see course listings under Iowa Lakeside Laboratory). All

Lakeside courses are small, full-immersion, field-oriented courses that run for 1-4 weeks. Lakeside also offers a variety of short courses for teachers and a series of nontechnical short courses on various aspects of the natural history of Iowa. Information about Lakeside courses as well as registration and housing information can be obtained from the Biology Program Office, 103 Bessey Hall or on the Lakeside Web site, www.continuetolearn.uiowa.edu/lakesidelab (<http://www.continuetolearn.uiowa.edu/lakesidelab>).

Regent Universities Student Exchange Program

Iowa State University students may take courses at either of the other two Regent universities for Iowa State resident credit. Regular, degree-bound students in good standing at any of the three Regent universities may attend another Regent university for a maximum of two semesters, and the credits earned at the other university will be counted as resident credit at the home institution. Approval for participation and credit in the exchange program must be obtained well in advance of registration since the department head must approve the acceptance of such credits if these are to apply to the major, and to ensure complete processing of the application between the cooperating universities within specified dates for enrollment. Detailed information and application forms for the exchange program are available from the Office of the Registrar.

National Student Exchange (NSE)

Iowa State University is a member of National Student Exchange. The NSE Consortium has 200 colleges and universities throughout North America providing academic and experiential exchange opportunities. Iowa State students with a cumulative GPA of at least 2.50 are eligible to apply. Credits earned as an NSE participant will be recorded on the students Iowa State transcript. Approval for credit in the NSE program should be sought from a student's academic adviser in advance of application. Detailed information and applications forms are available from:

National Student Exchange
1080 Hixson-Lied Student Success Center
(515) 294-6479
nse@iastate.edu

www.dso.iastate.edu/nse

Study Abroad

Our planet is in a constant state of change, and occurrences in remote corners of the globe can profoundly impact our lives. It is clear from the effects of global warming, international trade, terrorism, and pandemics of one nature or the other that we cannot ignore what is happening beyond our shores and borders. Students who graduate without an understanding of other cultures, languages, business practices, and political systems are disadvantaged both educationally and professionally. Studying abroad helps prepare students to meet the challenges of an increasingly interdependent global community. Further, study abroad is an adventure that challenges the student academically and provides real opportunities to interact with other cultures, languages, and lifestyles.

As a leading international university, Iowa State has a major commitment to study abroad, and the Study Abroad Center is the central administrative office responsible for providing these opportunities. We offer advising on study abroad, international internships, work, volunteer opportunities, and service-learning, and scholarships. The Center's library has a fine selection of travel books, information on international careers, cross-cultural orientation, social and business customs around the world, and travel bargains. The International Student Identity Card and passport photographs can also be obtained at the Center.

With over 250 study abroad programs available, from one week to an academic year in length and in nearly every major, students are able to find a program that meets their needs and interests so they can discover for themselves why study abroad is the most exciting academic adventure.

Exchange Programs offer students the opportunity to study abroad at a partner university while paying Iowa State tuition.

Semester in Australia, Canada, Greece, Ireland, Italy, New Zealand, or UK offers unlimited placement opportunities for students to study at some of our most popular destinations for the fall, spring, and in some cases summer.

Intensive Language Programs offer students a total immersion experience in French, German, Russian, or Spanish by studying in Québec, Canada (French), France, Germany, Russia, Mexico, Peru, or Spain. Summer and semester programs are available.

Group Programs led by our faculty offer Iowa State courses around the world. Short-term options can take you from the Antarctic to England and to more than 40 other destinations.

For additional information, contact:

Study Abroad

3224 Memorial Union
(515 294-6792)
www.studyabroad.iastate.edu

The main undergraduate academic programs of each college are listed below, together with the degrees awarded upon completion. In many cases certain majors, minors, options, or electives allow for increased specialization within the programs. Programs which are administered jointly by two colleges are listed within both colleges.

College of Agriculture and Life Sciences

- Agricultural Biochemistry, B.S.
- Agricultural Business, B.S.
- Agricultural and Life Sciences Education, B.S.
- Agricultural Studies, B.S.
- Agricultural Systems Technology, B.S.
- Agriculture and Society
- Agronomy, B.S.
- Animal Ecology, B.S.
- Animal Science, B.S.
- Biology, B.S.
- Culinary Science, B.S.
- Dairy Science, B.S.
- Diet and Exercise, B.S./M.S.
- Dietetics, B.S.
- Environmental Science, B.S.
- Environmental Studies, B.S.*
- Food Science, B.S.
- Forestry, B.S.
- Genetics, B.S.
- Global Resource Systems, B.S.
- Horticulture, B.S.
- Industrial Technology, B.S.
- International Agriculture, B.S. *
- Microbiology, B.S.
- Nutritional Science, B.S.
- Seed Science, B.S. *

* A secondary major must be taken in conjunction with a primary major.

College of Liberal Arts and Sciences

- Advertising, B.A.
- Anthropology, B.A., B.S.
- Biochemistry, B.S.
- Bioinformatics and Computational Biology B.S.
- Biological/Pre-Medical Illustration, B.A.
- Biology, B.S.
- Biophysics, B.S.
- Chemistry, B.A., B.S.
- Communication Studies, B.A.
- Computer Science, B.S.
- Earth Science, B.A., B.S.
- Economics, B.S.
- English, B.A., B.S.
- Environmental Science, B.S.
- Environmental Studies, B.A., B.S.*
- French (see World Languages and Cultures, below)
- Genetics, B.S.
- Geology, B.S.
- German (see World Languages and Cultures, below)
- History, B.A., B.S.
- Interdisciplinary Studies, B.A., B.S.
- International Studies, B.A., B.S. *
- Journalism and Mass Communication, B.A., B.S.
- Liberal Studies, B.L.S. (a general studies degree)
- Linguistics, B.A.

- Mathematics, B.S.
- Meteorology, B.S.
- Music, B.A., B.Mus.
- Performing Arts, B.A.
- Philosophy, B.A.
- Physics, B.S.
- Political Science, B.A.
- Psychology, B.A., B.S.
- Public Relations, B.S.
- Religious Studies, B.A.
- Sociology, B.A., B.S.
- Software Engineering, B.S.
- Spanish (See World Languages and Cultures, below)
- Speech Communication, B.A., B.S.
- Statistics, B.S.
- Technical Communication, B.S.
- Women's Studies, B.A., B.S.
- World Languages and Cultures B.A. :
 - French
 - German
 - Spanish

*A secondary major must be taken in conjunction with a primary major.

College of Business

- Accounting, B.S.
- Finance, B.S.
- Business Economics, B.S.
- Management, B.S.
- Management Information Systems, B.S.
- Marketing, B.S.
- Supply Chain Management, B.S.

College of Design

- Architecture, B.Arch.
- Art and Design, B.A.
- Community and Regional Planning, B.S.
- Design, B.Des.
- Graphic Design, B.F.A.
- Industrial Design, B.I.D.
- Integrated Studio Arts, B.F.A.
- Interior Design, B.F.A.
- Landscape Architecture, B.L.A.
- Biological / Pre-Medical Illustration (BPMI) B.A.* (<http://www.design.iastate.edu/bioillustration>)

* The College of Design participates in this interdepartmental major.

College of Engineering

- Aerospace Engineering, B.S.
- Agricultural Engineering, B.S.
- Biological Systems Engineering, B.S.
- Chemical Engineering, B.S.
- Civil Engineering, B.S.
- Computer Engineering, B.S.
- Construction Engineering, B.S.
- Electrical Engineering, B.S.
- Industrial Engineering, B.S.
- Materials Engineering, B.S.
- Mechanical Engineering, B.S.
- Software Engineering, B.S.

College of Human Sciences

- Apparel Merchandising, Design B.S.
- Athletic Training
- Child, Adult, and Family Services, B.S.

- Culinary Science, B.S.
- Diet and Exercise, B.S./M.S.
- Dietetics, B.S.
- Early Childhood Education, B.S.
- Elementary Education, B.S.
- Event Management, B.S.
- Family Finance, Housing, and Policy, B.S.
- Food Science, B.S.
- Hospitality Management, B.S.
- Kinesiology and Health, B.S.
- Nutritional Science, B.S.

College of Veterinary Medicine

- Veterinary Medicine, D.V.M.

Minors

1. All minors require at least 15 credits, including at least 6 credits taken at Iowa State University in courses numbered 300 or above.
2. The minor must include at least 9 credits that are not used to meet any other department, college, or university requirement.
3. Credits used to meet the minor requirements may also be used to satisfy the credit requirement for graduation and to meet credit requirements in courses numbered 300 or above.
4. Some students may have to exceed the graduation credit requirement set by their college in order to meet the requirements of both the minor and the curriculum/major.
5. Courses taken for a minor may not be taken on a pass-not pass basis.

Requirements for an undergraduate minor are specified by many departments and programs in the university; a record of completion of such requirements appears on a student's transcript. Lists of undergraduate minors offered by each college appear in the college description. Specific requirements and/or restrictions are available from the department or program offering the minor.

Minors by College

This list may not be inclusive. Check the college web sites for more information.

Agriculture and Life Sciences

- Agricultural Biochemistry
- Agricultural Business
- Agricultural Education and Studies
- Agricultural Systems Technology
- Agronomy
- Animal Ecology
- Animal Science
- Biology
- Emerging Global Diseases* (<http://www.ent.iastate.edu/dept/undergrad/egd>)
- Entrepreneurial Studies*
- Environmental Studies
- Food Safety*
- Food Science
- Forestry
- Genetics
- Horticulture
- Industrial Technology
- Insect Science
- International Agriculture
- Meat Science
- Microbiology
- Nutrition
- Sustainability*

*The College of Agriculture and Life Sciences participates in these interdepartmental minors.

Liberal Arts and Sciences:

- Advertising
- African American Studies
- American Indian Studies
- Anthropology
- Astronomy
- Biochemistry
- Bioinformatics and Computational Biology
- Biological Illustration
- Biology
- Chemistry
- Chinese Studies
- Classical Studies
- Communication Studies
- Computer Science
- Criminal Justice Studies
- Economics
- Emerging Global Disease *
- English
- Entrepreneurial Studies *
- Environmental Studies
- French
- Genetics
- Geology
- German
- Gerontology
- History
- International Studies
- Journalism and Mass Communication
- Latin
- Linguistics
- Mathematics
- Meteorology
- Military Studies (Army Reserve Officers' Training Corps)*
- Music
- Music Technology
- Performing Arts
- Philosophy
- Physics
- Political Science
- Psychology
- Religious Studies
- Russian Studies
- Sociology
- Spanish
- Speech Communication
- Statistics
- Sustainability*
- Teaching English as a Second Language
- Technical Communication
- Technology and Social Change
- U.S. Latino/a Studies
- Wind Energy*
- Women's Studies
- World Film Studies

*The College of Liberal Arts and Sciences participates in these interdepartmental minors.

Business

- Accounting (<http://www.business.iastate.edu>)
- Finance (<http://www.business.iastate.edu>)
- Logistics, Operations and Management (<http://www.business.iastate.edu>)
- Management (<http://www.business.iastate.edu>)

- Marketing (<http://www.business.iastate.edu>)

Design

- Critical Studies (<http://www.design.iastate.edu/criticalstudies.php>)
- Design Studies (<http://www.design.iastate.edu/designstudies.php>)
- Digital Media (<http://archive.design.iastate.edu/DMM>)
- Entrepreneurial Studies (<http://www.business.iastate.edu>) *
- Environmental Studies*
- Gerontology*
- International Studies*
- Sustainability* (<http://www.las.iastate.edu/sustainability>)
- Technology and Social Change*

*The College of Design participates in these interdepartmental secondary majors and minors.

Engineering

For Engineering Majors:

- Biomedical Engineering (<http://catalog.iastate.edu/collegeofengineering/biomedicalengineering/>)
- Energy Systems
- Engineering Sales
- Nondestructive Evaluation
- Sustainability* (<http://www.las.iastate.edu/sustainability>)
- Wind Energy *

*The College of Engineering participates in these interdisciplinary minors.

Human Sciences

- Apparel Merchandising, Design, and Production
- Athletic Coaching (<http://www.kin.hs.iastate.edu/programs/minors>)
- Child, Adult, and Family Services
- Culinary Science
- Dance (<http://www.kin.hs.iastate.edu/programs/dance/minor>)
- Family and Consumer Sciences Education
- Family Finance, Housing, and Policy
- Food Science
- Food Safety (interdepartmental minor)
- Gerontology (interdisciplinary minor)
- Hotel, Restaurant, and Institution Management
- Nutrition

Undergraduate Certificates

An undergraduate certificate provides a way to give formal recognition of focused study in a specialized area that is less comprehensive than required for an undergraduate major.

An undergraduate certificate has the following requirements and understandings:

1. A minimum of 20 credits, with at least 12 credits taken at ISU which are applicable towards the undergraduate certificate requirements
2. At least 9 of the credits taken at Iowa State University must be in courses numbered 300 or above
3. At least 9 credits used for a certificate may not be used to meet any other department, college, or university requirement for the baccalaureate degree except to satisfy the total credit requirement for graduation and to meet credit requirements in courses numbered 300 or above
4. A student may not receive both an undergraduate major and a certificate of the same name
5. For students earning an ISU baccalaureate degree, a certificate is awarded concurrent with or after the ISU baccalaureate degree
6. A certificate is not awarded if the baccalaureate requirements are not finished
7. After receiving a baccalaureate degree from any accredited institution, a student may enroll at ISU to earn a certificate
8. Courses taken for a certificate may not be taken on a pass-not pass basis
9. A cumulative grade point average of at least 2.00 is required in all courses taken at ISU towards the certificate
10. A notation of a completed certificate will be made on a student's transcript and a printed certificate will be awarded.

Iowa State University also offers certificates from the Graduate College and certificates via distance education .

Preprofessional Study

Requirements for admission to most professional academic programs can be met by study at Iowa State University. These requirements may be met in the course of obtaining a bachelor's degree from Iowa State or at a level below that of a degree, depending on the intended field of study. The specific courses taken in a preprofessional program will depend primarily upon the admission requirements of the professional schools to which a student wants to apply. In some programs requiring three years of preprofessional work, a student may, by careful planning, complete requirements for the bachelor's degree upon transferring to Iowa State up to 32 semester credits of professional coursework. Generally these credits will be counted as electives, but a maximum of 24 may be used as major credits in interdisciplinary studies and a smaller number as major credits in appropriate departments.

Students who have not declared a major upon entry should enter as preprofessional students, i.e., premedical, prelaw, PHP (preprofessional health programs), or GENPV (General Undergraduate Studies Pre Vet), until they choose a major or transfer to a professional school. All students, whether they have selected a major or not, are encouraged to identify their interest in a professional career by designating it on their application.

Information about preprofessional program admissions requirements and career opportunities in human health or law may be obtained in the Liberal Arts and Sciences Advising Center. Information about veterinary medicine admissions requirements and career opportunities may be obtained from the coordinator of the preveterinary program in the Office of the Dean of the College of Veterinary Medicine.

Clinical Laboratory Science/Medical Technology

Clinical laboratory scientists, still commonly referred to as medical technologists, are important members of health-care teams. They perform the chemical, microscopic, radio-assay, and microbiological tests that are necessary in disease diagnosis, and they type and cross-match blood samples to facilitate blood transfusions. They usually work under the supervision of a physician in a hospital or clinic laboratory, but may also be employed by a pharmaceutical company or by manufacturers of analytical instruments. The professional training requires 12 months in a hospital-based CLS/MT program following at least 3 years of college study that emphasizes chemistry and the biological sciences. Students may earn a bachelor's degree in specific ISU majors, by completing the admissions requirements of the CLS/MT program and most of the degree requirements in 3 years on campus, then spending their fourth year in one of the hospital programs that are affiliated with Iowa State University. Before beginning the off-campus studies, students must earn at least 88 credits; the 32 most recent credits must have been earned in residence at ISU. A maximum of 32 semester credits earned in pro-fessional CLS/MT school can be used to partially fulfill the requirements for the bachelor's degree. Students who complete all degree requirements in residence at the university may apply to any school of medical technology for which the admission requirements have been met.

The following CLS/MT program is affiliated with Iowa State University:

St. Luke's Methodist Hospital, Cedar Rapids, Iowa. Program Director: Carol Collingsworth. Medical Director: Lileah Harris, MD

Dentistry

Dentists diagnose, treat, and try to prevent diseases and injuries of the teeth, jaws, and mouth. Usually a general practitioner will have spent 3 or 4 years taking preprofessional courses at the undergraduate level and 4 years in dental school earning the degree of doctor of dental surgery (D.D.S.) or doctor of dental medicine (D.M.D.). Learning a specialty requires at least 2 more years. The courses necessary for admission to most dental schools include English, biology, general and organic chemistry, and physics. Students may earn a degree in any major that Iowa State University offers as they meet the admission requirements; they should choose their major to reflect their own interests and abilities. Highly qualified students may be accepted into dental school after 3 years of preprofessional study without earning a baccalaureate degree..

Health Information Management

Health information managers serve as supervisors of medical records departments in hospitals, clinics, nursing homes, and other healthcare institutions. Certified registered record administrators (R.R.A.) must have completed a program leading to a bachelor's degree in medical record administration. Most professional programs are 2 years in length and follow 2 years of college study in

chemistry, biology, the humanities, social sciences, languages, and philosophy. Students may take the preprofessional courses at Iowa State University and then transfer to a university offering the professional program or they may earn a bachelor's degree at Iowa State University before entering a health information management program.

Hospital and Health Administration

Administrators of health care organizations manage and guide the varied activities in hospitals, clinics, nursing homes, and mental health facilities. The professional requirement may be for a master's degree or a bachelor's degree, depending upon the size of the institution and whether an upper or middle entry-level position is desired. Students at Iowa State may take general education courses for two or more years and then transfer to a university offering a bachelor's degree in health administration, or they may spend four years earning a bachelor's degree in any department before entering a master's degree program at the University of Iowa or other university. Courses required for admission to master's degree programs in hospital and health administration vary, but may include introductory accounting, management, statistics, and economics.

Human Medicine

Physicians study, diagnoses, and treat illness and injury. They may work in offices, clinics, hospitals, or laboratories, in private practice or for government or industry. Their professional training usually consists of 4 years of study in a college of medicine to earn the doctor of medicine (M.D.) degree, and then 3 or more years in hospital residency learning a specialty such as family medicine, pediatrics, surgery, obstetrics, or psychiatry. A degree of doctor of osteopathy (D.O.) is awarded to those students who complete 4 years in a college of osteopathic medicine before their residency. All medical schools recommend a broad preprofessional education that includes courses in biology, chemistry, physics, mathematics, English, the social sciences, arts and humanities. The degree of a premedical student can be from any college and in any curriculum or major offered by the university. The major should reflect the student's interests and provide appropriate preparation for an alternative career.

Law

An attorney offers assistance, often where a third-party neutral arbiter is required to resolve conflicts. Many attorneys work in private practice, but others secure positions in the public sector, e.g., federal or state governmental agencies. A minimum of three years from an American Bar Approved (ABA) law school is required to earn a Doctor of Jurisprudence (J.D) degree. A bachelor's degree is required for admission to all accredited law schools. A student planning to enter law school may pursue an undergraduate degree in any discipline. The choice of the bachelor's degree should reflect a student's passion and personal interests and not be perceived as being the best degree to help them be admitted into law school. Appropriate courses should be completed that will enhance a student's development of critical thinking skills, including analytical written and oral skills. An understanding of business, social sciences, and humanities is necessary to comprehend the pluralistic society within and outside of the United States. These courses should include accounting, management, political science, psychology, criminal justice, economics, philosophy, English literature, and history. The completion of these courses will provide students with a knowledge base and skill sets that will assist them with their preparation for law school. Courses in mathematics and statistics are also helpful in developing analytical skills. Advanced writing courses and speech communication courses will also serve students well.

Library and Information Science

Librarians and information science specialists select, organize, preserve and promote information resources as well as advocate and teach information literacy skills. Professional opportunities include work for libraries in academic institutions, public education, city and county municipalities, medical facilities, government agencies, and corporate settings. They also have work opportunities in the publishing and information technology professions. Master's degree programs in library and information science provide the professional preparation. Iowa State students may earn a bachelor's degree in any department before entering a professional master's degree program. They may choose majors that reflect their interests and provide a foundation for working in the library and information science field.

Occupational Therapy

Occupational therapists provide purposeful activities to help those who have been disabled by physical illness or injury, birth defects, emotional disorder, aging, drug abuse, or other problems to learn to cope with everyday living. Therapists treat patients in hospitals, school systems, and rehabilitation centers. Students may

complete a bachelor's degree in any major at Iowa State University, and then enter a master's or doctoral degree program at another university.

Optometry

Optometrists examine, diagnose, treat and manage diseases of the visual system, the eye and associated structures. Treatment may include corrective glasses or contacts, vision therapy and therapeutic drugs. Optometrists usually set up their own offices or work in group practice. Professional study requires 4 years in a school or college of optometry and leads to the doctor of optometry (O.D.) degree. All optometry schools require at least 90 semester credits of preprofessional courses, including biology, chemistry, physics, mathematics, and English. Certain optometry schools require a bachelor's degree. Students wishing to earn the bachelor's degree from Iowa State University may choose any major and take the courses required for graduation with that major as they take the courses required for admission to a professional optometry program.

Pharmacy

Pharmacists prepare and dispense therapeutic drugs; educate health care professionals, patients and the general public about the appropriate use of drugs; conduct pharmaceutical research and work in industrial settings which involve the manufacture, marketing and advertising of pharmaceutical. Students may complete prepharmacy courses at Iowa State University. Many schools do not require a bachelor's degree for admission, however most students complete at least 3 years of college before admission to pharmacy schools. Upon admission, the student will then transfer to a Pharm. D. program of study which will entail four years of study.

Physical Therapy

Physical therapists work with people who have been disabled by injury, illness, or birth defects. They assist in evaluating the physical problems and administer therapeutic agents such as massage and exercise, heat, baths, ultrasonics, and electricity; they work in hospitals, clinics, nursing homes, schools, rehabilitation centers, and private practice. Usually, students earn a bachelor's degree at ISU before entering professional school to earn a doctoral degree. The bachelor's degree from ISU may be earned in any department, provided that the physical therapy prerequisites are completed. Courses required for admission to a professional program include biology, chemistry, physics, psychology, mathematics, and statistics.

Physician Assistant

A physician assistant provides medical services under the supervision of a licensed physician. PAs conduct physical examinations, order and interpret laboratory tests, make diagnostic and treatment decisions, and are allowed to prescribe medication in most states. Certification as a physician assistant requires at least 2 years in a professional program at the master's degree level. Applicants must have had health-care experience with direct patient contact experience. Students must have earned a bachelor's degree before entering a PA program. The degree can be in any area but the student must complete the pre-requisite courses for the PA program. These usually include courses in biology, chemistry, psychology, and statistics.

Podiatry

Podiatrists diagnose, and treat diseases and disorders of the human foot and ankle. They treat patients in private and group practice, hospitals, and, increasingly, in industrial and sports-related positions. Professional training requires 4 years in a college of podiatric medicine and leads to the degree of doctor of podiatric medicine (D.P.M.). This is usually followed by 1 to 3 years in a hospital residency. All podiatric colleges require at least 3 years of preprofessional study, including courses in biology, general and organic chemistry, physics, and English. Most entrants have a bachelor's degree, which may be in any major. A few students may complete the admission requirements and most of the bachelor's degree requirements in 3 years. If so, a maximum of 32 semester credits may be transferred to Iowa State University from the first year in an accredited podiatric college in order to complete the requirements for the bachelor's degree.

Theology or Religious Studies

The professional education of a student of religion can follow one of two paths. The path to a profession as a pastor, priest, rabbi or other leadership position in a religious tradition usually requires 3 years in a program leading to the master of divinity (M.Div.) offered at a school of divinity or of theology. The path to a profession as a teacher of religious studies at the college level requires 4-7 years in a program leading to the Ph.D. at a graduate school of Religious Studies. Both seminaries and graduate schools require a bachelor's degree for admission. The American Association of Theological Schools recommends the following areas

of study as the best preparation for theological studies: English language and literature; history, including non-Western culture; philosophy; natural sciences, social sciences, especially psychology, sociology and anthropology; the fine arts; Biblical and modern languages; and religion, both Western and Eastern. Although students in a variety of major fields may qualify for admission to a theological school, interested persons are advised to review their proposed programs with a representative of the Religious Studies Program in the Department of Philosophy and Religious Studies.

Veterinary Medicine

About 75% of all veterinarians are engaged in private practice. In a mixed practice, they diagnose and treat health problems among a variety of animals. Others specialize in one species (e.g., feline, pet bird) and still others specialize in a specific discipline within veterinary medicine (e.g., cardiology, ophthalmology). Veterinarians may also choose public and corporate practice (e.g., public health, education, research, food safety, industry, laboratory animal medicine, aquatic animal medicine, poultry medicine, and military veterinary medicine).

The professional program requires four years at a college of veterinary medicine and leads to the doctor of veterinary medicine degree (D.V.M.). Admission to a veterinary college involves at least two years of preprofessional college education. Candidates must take courses in biology, chemistry, genetics, physics, English, humanities, social sciences, speech, anatomy and physiology, and biochemistry. (For Iowa State University see Veterinary Medicine, Admission Requirements; for most recent information, consult the College of Veterinary Medicine Web site: www.vetmed.iastate.edu.)

Students may pursue their preveterinary preparation in any college at Iowa State University. A major (preveterinary medicine is not a major) should be selected that is allied to each student's vocational interests in veterinary medicine or that otherwise offers vocational satisfaction in the event that plans for entry into the College of Veterinary Medicine change. Students are encouraged to pursue a bachelor's degree; the most effective progress toward a bachelor's degree is made when a major is selected upon entry and no change occurs before graduation. However, students who have not even considered a career other than veterinary medicine may need some time to explore possibilities before selection of a major.

To assist students who have indicated interest in the preveterinary program for the College of Veterinary Medicine and are undecided about a major, an advising category is available known as GENPV (General Undergraduate Studies Pre Vet). Orientation and advising services for these students are designed to help students fulfill preveterinary course requirements, to introduce available majors and careers allied to veterinary medicine, and to introduce career options in veterinary medicine. GENPV students must select a major by the end of their second semester. Some Iowa State University majors allow, by careful planning, the opportunity for a student to earn the bachelor's degree by combining credits from three years of preprofessional study and one year of professional study in the College of Veterinary Medicine.