Informatics, BS

Requirements

The Bachelor of Science with a major in informatics requires a minimum of 120 s.h., including at least 55-60 s.h. of work for the major. Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. A cumulative GPA of at least 2.00 is required for graduation. Students also must complete the College of Liberal Arts and Sciences GE CLAS Core.

The program combines foundational informatics coursework with coursework in a cognate area. The major offers the cognate areas of bioinformatics, medical informatics, and individualized cognates. Required credit for the major depends on a student’s choice of cognate area.

Students who major in informatics may not also major in computer science, business analytics and information systems, or computer science and engineering. They may, however, earn a minor in computer science.

Coursework for the major includes the informatics core, two electives, a statistics course, and a set of courses in the chosen cognate area. Work for the major may not be taken pass/nonpass. Students are expected to have taken MATH:1005 College Algebra or the equivalent.

Departmental Residency Requirement

Students must complete at least five courses (minimum of 15 s.h.) at the University of Iowa from the following: CS:3910 Informatics Project and four additional courses numbered CS:2500-CS:4999; these courses are requirements for the BS in informatics as listed below.

Program Requirements

The BS with a major in informatics requires the following coursework. Many courses for the major require a minimum grade of C-minus in prerequisite courses.

Informatics Core Courses 19
Informatics Electives 6
Statistics Course 3-4
Cognate Courses 27-31

Informatics Electives

Students must complete at least two courses (6 s.h.) from a list of approved computing informatics electives. Course selection must be approved by an informatics advisor. In addition to the courses listed below, students may have additional choices from the Department of Electrical and Computer Engineering and the Department of Business Analytics; consult an informatics faculty advisor for additional choices.

Course #  Title  Hours
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CS:2620  Server-Side Development for Informatics 3
CS:3910  Informatics Project 3

Statistics Course

Students must complete one introductory statistics course. Some cognates require a specific statistic course. Students should consult with their advisors to choose a statistics course appropriate for their cognate area.

Course #  Title  Hours
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SOC:2160  Applied Statistics for Social Scientists 3
STAT:1020  Elementary Statistics and Inference 3
STAT:1030  Statistics for Business 4
STAT:2010  Statistical Methods and Computing 3
STAT:2020  Probability and Statistics for the Engineering and Physical Sciences 3
STAT:3120  Probability and Statistics 4
STAT:3510  Biostatistics 3
STAT:4143  Introduction to Statistical Methods 3

Cognates

Students must complete all requirements listed under one of the cognate areas below: bioinformatics, medical informatics, or an individualized cognate.

Bioinformatics

The informatics major with the bioinformatics cognate requires a minimum of 58 s.h. of work for the major, including at least 30 s.h. in cognate courses. The bioinformatics cognate is intended for students interested in applications of computing to the biological sciences. It may lead to careers in laboratory research, biotechnology, data management, and other related areas. It also may prepare students for graduate programs in bioinformatics or genetics. Cognate courses are drawn primarily from biology and chemistry.

Students who choose the bioinformatics cognate must satisfy the major’s statistics requirement with either STAT:2010 Statistical Methods and Computing or STAT:3510 Biostatistics.
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Course # | Title | Hours
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All of these:
BIOL:1411 | Foundations of Biology | 4
BIOL:1412 | Diversity of Form and Function | 4
CHEM:1110 | Principles of Chemistry I | 4
CHEM:1120 | Principles of Chemistry II | 4
BIOL:2512 | Fundamental Genetics | 4
BIOL:3172 | Evolution | 4
Two of these:
BIOL:2673 | Ecology | 3
BIOL:3212 | Bioinformatics for Beginners | 3
BIOL:3314 | Genomics | 3

Medical Informatics

The informatics major with the medical informatics cognate requires a minimum of 56 s.h. of work for the major, including at least 28 s.h. in cognate courses. The medical informatics cognate is intended for students interested in applications of computing to health care, especially in a clinical setting. It may lead to careers in medical or hospital settings, graduate programs in medical informatics, or professional degree programs in medicine, dentistry, nursing, or other allied health professions. Cognate courses are drawn from biology, chemistry, health and human physiology, and public health.

Students who choose the medical informatics cognate must satisfy the major’s statistics requirement with either STAT:2010 Statistical Methods and Computing or STAT:3510 Biostatistics.

Course # | Title | Hours
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All of these:
BIOL:1411- | Foundations of Biology | 8
BIOL:1412 - Diversity of Form and Function | 8
CHEM:1110 & | Principles of Chemistry I-II | 8
CHEM:1120 | | |
CHEM:2210 & | Organic Chemistry I-II | 6
CHEM:2220 | | |
At least two of these:
BIOL:2512 | Fundamental Genetics | 4
BIOL:3172 | Evolution | 4
CHEM:2410 | Organic Chemistry Laboratory | 3
HHP:1100 | Human Anatomy | 3
HMP:4000 | Introduction to the U.S. Health Care System | 3

Individualized Cognates

Individualized cognates may be drawn primarily from one department or an appropriate mix of departments; they require an approved set of cognate courses totaling 27-31 s.h. Students interested in developing individualized cognates should contact the Department of Computer Science for the name of an informatics faculty advisor.

Early Admission to the Graduate College

Undergraduate informatics students who have 6 s.h. or less to earn toward graduation may apply for early admission to the Graduate College. Early admission allows students in their final undergraduate semester to take courses for graduate credit in addition to the courses they need to complete their bachelor's degrees.