Informatics, MS

The MS in informatics is a non-research, course-based program for students who wish to enhance their careers with advanced knowledge of informatics. The coursework combines core informatics courses with cognate courses in one of these areas: geoinformatics, health informatics, or human-computer interaction.

Learning Outcomes

Students will exhibit:

- understanding of computational thinking concepts;
- experience in software development;
- expertise in data analytics methods;
- comprehension of and practice applying human-centered computing concepts;
- awareness of professional ethics; and
- domain-specific knowledge and skills related to the cognate area.

Requirements

The Master of Science program in informatics requires a total of 31 s.h. of graduate credit, including 19 s.h. of core courses and 12 s.h. of coursework in a chosen subprogram: geoinformatics, health informatics, or human-computer interaction. Students must maintain a Graduate College Program grade-point average of at least 3.00.

The MS in informatics requires the following coursework.

Core Courses

All students complete the following core courses.

Programming

Course #	Title	Hours
This course:		
CS:5110/IGPI:5110	Introduction to Informatics	3
One of these:		
CS:3010	Software Engineering Fundamentals in Java	3
CS:3210	Programming Languages and Tools	3
CS:3980	Topics in Computer Science I	3
SEES:3050/ IGPI:3050	Geospatial Programming (required for geoinformatics cognate)	3

Statistics

Course #	Title	Hours
One of these:		
BIOS:4120	Introduction to Biostatistics (required for health informatics cognate)	3
STAT:4143/ PSQF:4143	Introduction to Statistical Methods	3

Data Science

Course #	Title	Hours
One of these:		
BAIS:6480/ IGPI:6480	Knowledge Discovery	3
STAT:4540/ BAIS:4540/ DATA:4540/ IGPI:4540	Statistical Learning	3
An approved course (consult advisor)		3

Databases

Course #	Title	Hours
One of these:		
CS:4400	Database Systems	3
SEES:4580/ IGPI:4581	Introduction to Geographic Databases (required for geoinformatics cognate)	3

Human Factors

Course #	Title	Hours
One of these:		
CS:4500	Research Methods in Human-Computer Interaction	3
CS:4510	Human-Computer Interaction for Computer Science (if student has not taken CS:2520)	3
SEES:3540/ IGPI:3540	Geographic Visualization (required for geoinformatics cognate)	3

Ethics

Course #	Title	Hours
This course:		
CS:5980	Topics in Computer Science III (Responsible Conduct of Research)	1

Subprograms

Students choose one of three subprograms and complete the requirements.

Geoinformatics Subprogram

Course #	Title	Hours
All of these:		
SEES:3500/ IGPI:3500	Introduction to Environmental Remote Sensing	3
SEES:3520/ IGPI:3520	GIS for Environmental Applications	3
SEES:3570	Light Detection and Ranging (LiDAR): Principles and Applications	3
SEES:4150/ GHS:4150/ IGPI:4150	Health and Environment: GIS Applications	3

Health Informatics Subprogram

Course #	Title	Hours
Four of these:		
BIOL:3212/ IGPI:3212	Bioinformatics for Beginners	3
BIOL:4386	Introduction to Scientific Computing for Biologists	3
BIOS:5120/ IGPI:5120/ STAT:5610	Regression Modeling and ANOVA in the Health Sciences	3
BMB:3310/ CBIO:3310/ MMED:3310	Practical Data Science and Bioinformatics (recommended for students with a biology background)	3
BMB:4310/ BME:4310	Computational Biochemistry	3
BME:5335	Computational Bioinformatics	3
CS:4470	Health Data Analytics	3
EPID:4400	Epidemiology I: Principles	3

Human-Computer Interaction Subprogram

Course #	Title	Hours
Three of these:		
PSQF:6243/ STAT:6513	Intermediate Statistical Methods	3
PSY:3060	Sensation and Perception	3
An approved elective (consult director)		3
One of these:		
CS:4500	Research Methods in Human-Computer Interaction (if not taken to satisfy Human Factors requirement)	3
CS:4510	Human-Computer Interaction for Computer Science (if not taken to satisfy Human Factors requirement and if have not taken CS:2520)	3
ISE:6211	Human Factors in Healthcare Systems	3
ISE:6220	Cognitive Engineering	3

For more information about the Master of Science requirements, see the Interdisciplinary Graduate Program in Informatics website.

Combined Programs

MS (Health Informatics–Pharmacy Subprogram)/PharmD

The purpose of the combined program is to provide an opportunity for professional students in the College of Pharmacy to receive formal training in health informatics in addition to training in pharmacotherapy and health care. Students completing the degree program receive an MS in informatics with the health informatics–pharmacy subprogram (without thesis) from the Graduate College and a PharmD from the College of Pharmacy. Students develop special expertise in information technology, including management of electronic health records, health information exchange standards, electronic prescribing, medication management, decision support, and other competencies.

The combined program requires 34 s.h. Courses that can be used to count toward both programs include 19 s.h. of core courses, 6 s.h. of courses from the health informatics cognate, and 9 s.h. from the PharmD curriculum selected from the following.

Course #	Title	Hours
PHAR:8209	Introductory Pharmacy Practice Experiences Hospital	3
PHAR:8250	Applications of Pharmacy Practice I	2
PHAR:8265	Applications of Pharmacy Practice II	2
PHAR:8374	Applications of Pharmacy Practice III	2
PHAR:8378	Pharmacy Law and Ethics	2

A separate application for each degree program is required. Applicants must be admitted to both programs before they may be admitted to the combined degree program. It is recommended that students apply to the Graduate College for admission to the MS program before entering the spring semester of their first year in the pharmacy program. For more information, see Doctor of Pharmacy, PharmD in the College of Pharmacy section of the catalog.

Graduate Education

Graduate education prepares students with advanced knowledge and skills in specialized fields. At the University of Iowa, the Graduate College advocates for student-centered graduate education and supports equitable application of rules and policies across graduate programs.

Academics

University of Iowa graduate credentials are regulated by policies and requirements found in the Graduate College Manual of Rules and Regulations. This includes minimum grade-point average (GPA) requirements for academic standing and degree conferral. The Graduate College sets the minimum requirement. Individual graduate programs may establish higher GPA requirements.

Admissions

Graduate student applicants must meet admission requirements for both the Graduate College and the program to which they have applied. University of Iowa graduate admission requirements are published by the Graduate College and on the Graduate Admissions website.

Financial Support

Graduate students might be eligible for financial support. Several contingencies apply, including degree program and award type, satisfactory progress toward degree, satisfactory completion of all duties related to an appointment, and availability of funding. Graduate students should inquire directly with their program for more information about funding availability. The Graduate Student Employment Standards govern the employment relationship between the University of Iowa and all graduate teaching and research assistants in all matters except wages, which are covered by an existing

collective bargaining agreement or the conditions of an applicable federal grant.

Admission

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations on the Graduate College website. They must also meet the admission requirements of the informatics subprogram they want to enter; see PhD and MS Admission on the program's website.

Academic Plans

Sample Plans of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Informatics, MS

- Geoinformatics Subprogram
- Health Informatics Subprogram
- Human-Computer Interaction Subprogram

Geoinformatics Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
31 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
	Hours	**0**
First Year		
Fall		
STAT:4143 or BIOS:4120	Introduction to Statistical Methods or Introduction to Biostatistics	3
CS:5110	Introduction to Informatics	3
Programming course [b]		3
	Hours	**9**
Spring		
BAIS:6480 or STAT:4540	Knowledge Discovery or Statistical Learning	3
CS:4400 or SEES:4580	Database Systems or Introduction to Geographic Databases	3
CS:5980	Topics in Computer Science III [c]	1
SEES:3500	Introduction to Environmental Remote Sensing	3
	Hours	**10**
Second Year		
Fall		
CS:4510 or SEES:3540 or CS:4500	Human-Computer Interaction for Computer Science or Geographic Visualization or Research Methods in Human-Computer Interaction	3
SEES:3520	GIS for Environmental Applications	3
	Hours	**6**
Spring		
SEES:3570	Light Detection and Ranging (LiDAR): Principles and Applications	3
SEES:4150	Health and Environment: GIS Applications	3
	Hours	**6**
	Total Hours	**31**

a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
b Choose from CS:3010, CS:3210, CS:3980, SEES:3050.
c Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

Health Informatics Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
31 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
	Hours	**0**
First Year		
Fall		
BIOS:4120 or STAT:4540	Introduction to Biostatistics or Statistical Learning	3
SEES:4580 or CS:4400	Introduction to Geographic Databases or Database Systems	3
CS:5110	Introduction to Informatics	3
	Hours	**9**
Spring		
BAIS:6480 or STAT:4540	Knowledge Discovery or Statistical Learning	3
CS:5980	Topics in Computer Science III [b]	1
Health informatics course [c]		3
Programming course [d]		3
	Hours	**10**
Second Year		
Fall		
CS:4510 or CS:4500 or SEES:3540	Human-Computer Interaction for Computer Science or Research Methods in Human-Computer Interaction or Geographic Visualization	3
Health informatics course [c]		3
	Hours	**6**
Spring		
Health informatics course [c]		3
Health informatics course [c]		3
	Hours	**6**
	Total Hours	**31**

a Students must complete specific requirements in the University of Iowa Graduate College after program

admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.

b Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

c See the General Catalog for list of approved courses.

d Choose from CS:3010, CS:3210, CS:3980, SEES:3050.

Human-Computer Interaction Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
31 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. [a]		
	Hours	**0**
First Year		
Fall		
BIOS:4120 or STAT:4143	Introduction to Biostatistics or Introduction to Statistical Methods	3
CS:4400 or SEES:4580	Database Systems or Introduction to Geographic Databases	3
CS:5110	Introduction to Informatics	3
	Hours	**9**
Spring		
BAIS:6480 or STAT:4540	Knowledge Discovery or Statistical Learning	3
CS:4500 or CS:4510 or SEES:3540	Research Methods in Human-Computer Interaction or Human-Computer Interaction for Computer Science or Geographic Visualization	3
CS:5980	Topics in Computer Science III [b]	1
Programming course [c]		3
	Hours	**10**
Second Year		
Fall		
Human-computer interaction course [d]		3
Human-computer interaction course [d]		3
	Hours	**6**
Spring		
Human-computer interaction course [d]		3
Human-computer interaction course [d]		3
	Hours	**6**
	Total Hours	**31**

a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.

b Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

c Choose from CS:3010, CS:3210, CS:3980, SEES:3050.

d See the General Catalog for list of approved courses.