

# Informatics, B.S.

Want to learn how to design better user interfaces? Curious to learn how to observe people when they use information technology and how to turn your findings into innovative products? Wondering how evolving privacy laws affect the design of software worldwide? Care about helping people in need with smart apps? Interested in learning how organizations work and how information technology can support their practices?

If you answered yes to one or more of these questions, UC Irvine's Informatics major just might be the choice for you.

The B.S. in Informatics is designed around a small set of core courses that introduce the fundamentals of Informatics (human computer interaction, design), software (programming, requirements analysis), and human behavior (social analysis of computerization). From there, three specializations — human-computer interaction, health informatics, and organizations and information technology — enable students to focus their learning with more than three dozen courses from which they can choose. The major is inherently interdisciplinary, with courses ranging from sociology and psychology to management and public health, depending on the specialization chosen.

Throughout the major, a variety of project courses offer students hands-on experiences in creative design practices, app development, ethnography, information management, business IT, and other topics. You learn how to apply your skills in different domains and work in different teams, culminating in a two-quarter capstone course in which you engage in a real-world project sponsored by a company or organization outside the university.

Overall, the major strongly emphasizes people and design; building an understanding of how existing technologies shape human behavior, society, and culture; and how we can design future technologies that better fit human and organizational practices. Given the fluid nature of people's expectations for information technology and what tomorrow's technology can offer, students learn how to adapt to the continuous new circumstances of the profession — whether it is a new client and their habits, an emerging new device or software capability, or a new team and its practices.

Informatics majors complete one of four specializations: Human-Computer Interaction (HCI), Organizations and Information Technology (OIT), Health Informatics (HI), or Specialization in Individual Studies. More information is available at the Department of Informatics website (<http://www.informatics.uci.edu/undergrad/bs-informatics/>).

Freshmen Applicants: See the Undergraduate Admissions section (<http://catalogue.uci.edu/informationforprospectivestudents/undergraduateadmissions/#admissionasafreshmanapplicanttext>).

## Transfer Applicants:

Transfer applicants who satisfactorily complete course prerequisites will be given preference for admission. All applicants must complete the following required courses: one course in statistics or boolean algebra, one year of object-oriented programming (python, java, C++), and completion of lower-division writing. Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Visit the *UCI Office of Admissions website* for information on transfer requirements for our major.

Bren School of ICS majors (including shared majors, BIM, and CSE) pursuing minors within the Bren School of ICS may not count more than five courses toward both the major and minor. Some ICS majors and minors outside of the School are not permitted due to significant overlap. Visit the ICS Student Affairs Office website for Majors and Minors restrictions. ([http://www.ics.uci.edu/ugrad/degrees/MajorMinor\\_Restrictions\\_Chart.pdf](http://www.ics.uci.edu/ugrad/degrees/MajorMinor_Restrictions_Chart.pdf)) All students should check the Double Major Restrictions Chart ([http://www.ics.uci.edu/ugrad/degrees/DbI\\_Major\\_Restr\\_Chart.pdf](http://www.ics.uci.edu/ugrad/degrees/DbI_Major_Restr_Chart.pdf)) and view our information page ([http://www.ics.uci.edu/ugrad/degrees/Double\\_Majors.php](http://www.ics.uci.edu/ugrad/degrees/Double_Majors.php)) on double majoring to see what degree programs are eligible for double majoring.

**All students must meet the University Requirements** (<http://catalogue.uci.edu/informationforadmittedstudents/requirementsforabachelorsdegree/>).

## Major Requirements

### Lower-division

A. Select one of the following series:

I&C SCI 31- 32- 33

Introduction to Programming  
and Programming with Software Libraries  
and Intermediate Programming

or

I&C SCI 32A- 33

Python Programming and Libraries (Accelerated)  
and Intermediate Programming

B. Complete:

I&C SCI 45J

Programming in Java as a Second Language

IN4MATX 43

Introduction to Software Engineering

I&C SCI 6B

Boolean Logic and Discrete Structures

STATS 7

Basic Statistics

or STATS 67

Introduction to Probability and Statistics for Computer Science

**Upper-division****A. Informatics Core Requirements:**

IN4MATX 113	Requirements Analysis and Engineering
IN4MATX 121	Software Design: Applications
IN4MATX 131	Human Computer Interaction
IN4MATX 151	Project Management
IN4MATX 161	Social Analysis of Computing
IN4MATX 191A- 191B	Senior Design Project and Senior Design Project

**B. One of the following specializations:****1. Specialization in Human-Computer Interaction**

Complete:

IN4MATX 132 Project in Human-Computer Interaction Requirements and Evaluation

and select three of the following:

IN4MATX 133 User Interaction Software

IN4MATX 141 Information Retrieval

IN4MATX 143 Information Visualization

IN4MATX 153 Computer Supported Cooperative Work

IN4MATX 162W Organizational Information Systems

IN4MATX 171 Introduction to Medical Informatics

and select two project courses from the following:

IN4MATX 125 Computer Game Development

IN4MATX 134 Project in User Interaction Software

IN4MATX 148 Project in Ubiquitous Computing

IN4MATX 163 Project in the Social and Organizational Impacts of Computing

IN4MATX 172 Project in Health Informatics

and select two additional courses from the following:

IN4MATX 100–190

**2. Specialization in Organizations and Information Technology**

Complete:

IN4MATX 141 Information Retrieval

IN4MATX 162W Organizational Information Systems

IN4MATX 163 Project in the Social and Organizational Impacts of Computing

MGMT 5 Management of Contemporary Organizations

MGMT 102 Managing Organizational Behavior

and select four of the following:

MGMT 107 Introduction to Management Information Systems

MGMT 173 Business Intelligence for Analytical Decisions

MGMT 178 Management of Information Technology

PSCI 9 Introduction to Psychology

PSCI 104S Social Animal: An Introduction to Social Psychology

PSCI 176S Motivation

SOCIO 41 Small Group Dynamics

SOCIO 135 Social Psychology of Networks

SOCIO 141 Organizations

SOCIO 143 Social Networks and Social Support

IN4MATX 100–190

and select two additional courses from the following:

IN4MATX 100–190

COMPSCI 100–199

**3. Specialization in Health Informatics**

Complete the following:

IN4MATX 171	Introduction to Medical Informatics
IN4MATX 172	Project in Health Informatics
Select four from the following:	
IN4MATX 124	Internet Applications Engineering
IN4MATX 132	Project in Human-Computer Interaction Requirements and Evaluation
IN4MATX 133	User Interaction Software
IN4MATX 134	Project in User Interaction Software
IN4MATX 141	Information Retrieval
IN4MATX 143	Information Visualization
IN4MATX 148	Project in Ubiquitous Computing
IN4MATX 153	Computer Supported Cooperative Work
IN4MATX 162W	Organizational Information Systems
IN4MATX 163	Project in the Social and Organizational Impacts of Computing
COMPSCI 111	Digital Image Processing
COMPSCI 122A	Introduction to Data Management
COMPSCI 131	Parallel and Distributed Computing
COMPSCI 134	Computer and Network Security
COMPSCI 145- 145L	Embedded Software and Embedded Software Laboratory
COMPSCI 171	Introduction to Artificial Intelligence
COMPSCI 178	Machine Learning and Data-Mining

and select two courses from the following:

NUR SCI 110W	Frameworks for Professional Nursing Practice
PUBHLTH 101	Introduction to Epidemiology
PUBHLTH 122	Health Policy

and select two additional courses from the following:

IN4MATX 100-199
COMPSCI 100-199
PUBHLTH 100-199

#### 4. Specialization in Individual Studies <sup>1</sup>

<sup>1</sup> Informatics majors must complete a detailed proposal to apply for this specialization. All candidates must meet the following minimum qualifications for consideration:

- UCI transcript demonstrating at least 3.0 UC GPA.
- Completion of at least 46 units or sophomore standing at UC Irvine.

Proposals must include the following:

- Syllabi and/or course descriptions of intended coursework.
- Academic plan demonstrating completion of 40 units of credit that significantly complements the core Informatics courses to create a coherent curriculum focused on studying some aspect of living, working, and building in a digital world.
- Students entering as freshmen should plan to submit their proposals no later than the beginning of spring quarter of the freshman year. Students entering as transfers must submit their proposals no later than the beginning of spring quarter of their first year at UCI.
- Students must submit their approval proposals to the ICS Student Affairs no later than two weeks after receiving a signature.

All proposals are to be submitted to the Department of Informatics' Undergraduate Vice Chair for approval. Failure to receive approval will require majors to choose another specialization for the major. Information about the Department of Informatics can be found at [Informatics.uci.edu](http://www.informatics.uci.edu) (<http://www.informatics.uci.edu>).

### Sample Program of Study — Informatics: Health Informatics (HI)

Freshman		
Fall	Winter	Spring
I&C SCI 31	I&C SCI 32	I&C SCI 33
I&C SCI 90	I&C SCI 6B	IN4MATX 43
STATS 7	WRITING 39B	WRITING 39C
WRITING 39A		
Sophomore		
Fall	Winter	Spring
I&C SCI 45J	IN4MATX 113	Specialization

IN4MATX 121	IN4MATX 131	General Education III
IN4MATX 161	U-D Writing	General Education IV
	General Education III	
<b>Junior</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
Specialization	IN4MATX 151	Specialization
Specialization	Specialization	Specialization
General Education III	General Education IV	General Education VI
<b>Senior</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
IN4MATX 191A	IN4MATX 191B	Specialization
Specialization	Specialization	Specialization
General Education IV	General Education VII	General Education VIII

### Sample Program of Study — Informatics: Human-Computer Interaction (HCI)

<b>Freshman</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
I&C SCI 31	I&C SCI 32	I&C SCI 33
STATS 7	I&C SCI 6B	IN4MATX 43
WRITING 39A	WRITING 39B	WRITING 39C
I&C SCI 90		
<b>Sophomore</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
I&C SCI 45J	IN4MATX 113	Specialization
IN4MATX 161	IN4MATX 131	General Education III
Specialization	General Education IV	General Education IV
<b>Junior</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
IN4MATX 121	IN4MATX 151	Specialization
Specialization	Specialization	General Education III
General Education III	U-D Writing	General Education VI
<b>Senior</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
IN4MATX 191A	IN4MATX 191B	Specialization
Specialization	Specialization	Specialization
General Education IV	General Education VII	General Education VIII

### Sample Program of Study — Informatics: Organizations and Information Technology (OIT)

<b>Freshman</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
I&C SCI 31	I&C SCI 32	I&C SCI 33
STATS 7	I&C SCI 6B	IN4MATX 43
WRITING 39A	WRITING 39B	WRITING 39C
I&C SCI 90		
<b>Sophomore</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
I&C SCI 45J	IN4MATX 113	Specialization
IN4MATX 161	IN4MATX 131	General Education III
Specialization	General Education III	General Education IV
	General Education IV	
<b>Junior</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
IN4MATX 121	IN4MATX 151	Specialization
Specialization	Specialization	Specialization
General Education III	U-D Writing	General Education VI
<b>Senior</b>		
<b>Fall</b>	<b>Winter</b>	<b>Spring</b>
IN4MATX 191A	IN4MATX 191B	Specialization
Specialization	Specialization	General Education IV
General Education VII	Specialization	General Education VIII