



INFORMATICS

Degrees available: Major and Minor

What is Informatics?

- » Informatics brings together software engineering, human-computer interaction, and the study of information technology in organizations into a single, focused degree program.
- » Informatics addresses the design and construction of information technology systems that will be effective in real-world situations. It includes not only building software but also examining the human, organizational, and social context where the system will be used.
- » Informatics is the interdisciplinary study of the design, implementation, use, and impact of information technology.
- » Informatics is a common term for computer science in European universities; the number of Informatics programs in American universities is growing.

Traditional computer science programs focus on analyzing and designing computers and computer systems, but the success of those systems depends not only on their intrinsic characteristics but also on the real-world situations where they will be used—the human users and their requirements, characteristics, and organizations. Informatics studies computer systems in their real-world context and how to design and build those systems so they work effectively in that context.

In Informatics we aim to:

- Design and develop new uses for information technology.
- Understand the effect information technology has on people.
- Apply information technology in fields ranging from medicine to music, from ecology to aerospace, from finance to entertainment.

UCI's Informatics major offers a contemporary curriculum with an emphasis on group work (starting in the first course), studio-oriented design courses, and a year-long senior project.

Is Informatics for me?

Informatics is for you if you:

- Enjoy solving problems using all the tools you have available.
- Can work not only with technical details but also with "big-picture" issues.
- Have strong reading and writing skills and can think freely, creatively, and systematically.

Previous experience in computer programming is not required to start the Informatics major. Programming is just one aspect of Informatics and the major introduces all the necessary skills at a manageable pace. Students who do already have some programming experience will also find new concepts, even in the very first course.

What do I take?

All Informatics majors take a common core of 16 courses. After their first year, Informatics majors choose an additional 10 courses in one of three specializations:

- Software Engineering
- Human-Computer Interaction
- Organizations and Information Technology

The right column shows in more detail an example course of study for the Informatics degree program. This is just one example; students may complete these courses in any order that is consistent with the prerequisites and the actual offerings each year.

SUGGESTED CURRICULUM for the Informatics major

Freshman

Informatics Core I and II
Fundamental Data Structures or Patterns of Software Construction
Informatics Research Topics
Critical Reasoning
Boolean Algebra and Symbolic Logic
Fundamentals of Composition¹
Critical Reading and Rhetoric
Argument and Research

Sophomore

Human Computer Interaction
Specialization Upper-Division Core Classes² (five courses)
Basic Statistics or Introduction to Probability and Statistics for Computer Science
General Education (four courses)

Junior

Social Analysis of Computerization
Software Design I
Project Management
Specialization Upper-Division Core Classes (five courses)
General Education (three courses)
Elective (one course)

Senior

Senior Design Project (three courses)
Specialization Upper-Division Core Classes (one course)
Elective (three courses)
General Education (three courses)

¹Purple courses are part of the UCI general education core courses. Overlapping or previously satisfied requirements may allow students more free electives.

²Students must choose one of the following specializations: Software Engineering (SE), Human Computer Interaction (HCI), or Organizations and Information Technology (OIT).

The first year of the program provides students with a hands-on introduction to the broad field of Informatics, centering on the Informatics Core Course. This year-long course develops students' basic understanding of software: how to design and construct programs and how the programs operate as part of information technology systems.

The second year builds up a portfolio of foundational concepts and techniques that establish the discipline of Informatics; these contribute to the "toolbox" students will use in subsequent years to solve large-scale information and software design problems.

In the third year, all students study the design process, project management, and the impacts of technology on the real world. Students also take more advanced courses that support their specialization in either software engineering, human-computer interaction, or the study of organizations and information technology. These may involve courses in Management, Psychology, Computer Science, or Engineering.

The fourth year is built around a year-long capstone project in which groups of students address a significant project, typically from an outside client.

What can I do with a degree in Informatics?

A degree in Informatics provides excellent preparation for work at the forefront of the computing industry. Our students work in many industrial settings, such as start-up companies, small software houses, consulting firms and multi-national corporations. They are prepared for careers in:

- » Software Engineer
- » Information Architect
- » Usability Engineer
- » Human-Computer Interface Designer
- » Game Designer
- » Mobile Computing Systems Designer

Many students will go on to graduate school in computer engineering, computer science, information science, management or law.

Special Programs and Courses

Bren School of ICS Introductory Honors Courses

Honors versions of the introductory computer science courses (ICS H21/H22/H23) required for several of our majors are available to students who are seeking the challenge of learning conventional course material in greater depth and scope. Eligibility requirements and registration details will be provided during summer advising sessions.

Bren School of ICS Honors Program

Bren ICS juniors and seniors have the opportunity to learn about the research process and engage in advanced work with a faculty advisor. Students admitted to the program participate in an honors seminar, conduct independent research under the guidance of a faculty (for a minimum of two quarters), and write a research paper for review by their faculty advisor and the Honors Program Faculty Director. More information is available at <http://www.ics.uci.edu/ugrad/honors/index.php>.

Undergraduate Research

Bren ICS faculty offers numerous opportunities for undergraduates to participate in and learn about the process of conducting independent research outside of the formal requirements of the Bren School of ICS Honors Program (see above). Students are also encouraged to participate in the UCI Undergraduate Research Opportunities Program (UROP), which offers guidance and grant funding for student-proposed independent research.

Concentration in Game Culture and Technology

The concentration in Game Culture and Technology is available only to currently enrolled students majoring in Computer Science, Informatics, Information and Computer Science, and Studio Art. Students may apply for admission no earlier than the end of their freshman year,

and no later than the end of their junior year. Selection is based on a competitive review process. Interested students should contact the Student Affairs Office for information about the selection process and course requirements.

Complementing the Bren School Undergraduate Experience

- The Bren School is very proud of its active and involved student body. Our student clubs and organizations provide opportunities for service, teamwork, leadership development and networking with other students, faculty, and community service organizations. More information is available at <http://www.ics.uci.edu/ugrad/life/index.php>.
- Bren School undergraduates may participate in MentorNet, an award-winning e-mentoring program that matches a student with a working professional in an academic, industry or government setting willing to share "real world" experience, encouragement, advice and access.
- Bren ICS students can broaden their educational experience by participating in a variety of campus programs for which they meet the eligibility guidelines. A few examples include: Campuswide Honors Program, Education Abroad Program, UCI SAGE (Student Achievement Guided by Experience) Scholars Program, and UCI California Teach Initiative Science and Math Initiative. For additional information, search for the individual program's website at www.uci.edu.

The Donald Bren School of Information and Computer Sciences is the only independent computing-focused school in the University of California ten-campus system. The School's stand-alone structure (as opposed to being a department within an engineering school) enables the faculty to take the broadest possible view of information technology and computer sciences. This breadth is reflected in the diversity of faculty research areas and expertise, course offerings, and range of academic degree offerings (below), some of which are interdisciplinary and jointly managed with other academic units.

Bren ICS Degree Programs Leading to a Bachelor of Science

Students with interests in software, hardware, computer engineering, information management, or the intersection of computer science with another discipline (e.g. the arts, biology, business, transportation, sociology) will find a degree program to suit their academic goals.

- Biomedical Computing (pending approval)
- Business Information Management (joint major with The Paul Computer Science)
- Computer Science and Engineering (joint major with The Henry Samueli School of Engineering)
- Informatics
- Information and Computer Science
- ICS Undeclared (Pre-Major option for freshmen who are "not yet sure")

Want more information?

Prospective students committed to a thoughtful, engaged college search process are strongly encouraged to schedule a campus visit or attend a Bren ICS-hosted event (typically held in March, April, May). Bren ICS faculty, academic counselors and student ambassadors are available to help you explore which of the various degree options best fit your academic strengths and interests.

Contact:

Bren ICS Student Affairs Office
Information and Computer Science Building I, Suite 352
Irvine, CA 92697-3430

Phone: (949) 824-5156
Email: ucounsel@uci.edu
Website: www.ics.uci.edu