



## Donald Bren School of Information and Computer Sciences

### Undergraduate Areas of Study

#### ICS Undeclared Pre-Major

(available to freshmen only)

#### Majors (all leading to a Bachelor of Science)

##### Biomedical Computing

(freshmen applicants only for fall 2010;  
open to transfer applicants for fall 2011)

##### Business Information Management

##### Computer Science

##### Computer Science and Engineering

(4 track options)

##### Informatics

(3 specialization options)

##### Information and Computer Science

(7 specialization options)

#### Concentrations (for continuing students only;

by application)

Engineering and Computer Science in the  
Global Context

Game Culture and Technology

#### Minors

Biomedical Computing

Informatics

Information and Computer Science

Statistics

**Note:** Undergraduate advising is provided to prospective and current students by the counseling staff in the Donald Bren School of Information and Computer Sciences Student Affairs Office, ICS 1, Suite 352, (949) 824-5156.

### School Overview

The Donald Bren School of Information and Computer Sciences (Bren ICS) embodies excellence, creativity, and collaborative innovation in computer science and information technology. From its inception 40 years ago to its current status as the only independent computing school in the University of California system, Bren ICS is well-positioned to continue its tradition of exploring and advancing the boundaries of a broad multidisciplinary field on a national and international scale.

The School offers a comprehensive set of undergraduate degree programs, each of which provide some flexibility in tailoring the academic plan to best meet a student's particular interests. A Bren ICS undergraduate education is a blend of scholarship, science, technology, and practical application that forms an excellent foundation for professional life or graduate education.

Bren School graduates pursue a variety of careers. They specify, design, and develop computer-based systems comprised of software and hardware in virtually every domain, including biomedical, consumer, engineering, entertainment, environmental, finance, investment, law, management, manufacturing, education and pharmacology. Graduates work for established and start-up companies, as independent consultants, and in management or advanced technical positions.

### Undergraduate Degree Programs

(all leading to a Bachelor of Science)

**Biomedical Computing:** The BMC major prepares students to understand the theory, context, application and practice of biomedical computing. Coursework includes a firm quantitative grounding in mathematics, statistics, and computation; the basic foundations of physics and chemistry; the fundamentals of molecular biology from a computational perspective; theory, algorithms, data mining, and machine learning; quantitative and biological science electives, and a capstone senior design sequence that unifies theory and practice through applied problem-solving.

**Business Information Management:** The BIM major teaches students to understand and apply the theories of a broad, integrated curriculum covering computer science, business concepts, and analytical methods. Students will use and evaluate the technologies through which business information is gathered, analyzed, and presented.

**Computer Science:** The CS major provides students with an education that focuses on the design and implementation of computer systems and the software that runs them, as well as the application of these tools to solve complex problems. Students may take a variety of courses to broaden their knowledge or may specialize in particular areas. The major is well-suited for more in-depth study of topics such as artificial intelligence and machine learning, advanced data structures, computer graphics, cryptography and security, and computational biology.

**Computer Science and Engineering:** The CSE major gives students access to multidisciplinary problems in engineering with a focus on total systems engineering. Students learn the computer science principles that are critical to development of software, hardware, and networking of computer systems. From this background, engineering concepts and methods are added to give students exposure to circuit and network design, and digital signal processing. Elements of engineering practice include systems view, manufacturing and economic issues, and multidisciplinary engineering applications. In their senior year, CSE majors complete one of 4 track options (Algorithms, Artificial Intelligence, Graphics/Vision, or Parallel and Distributed Computing) and engage in a year-long team-based senior design project.

**Informatics:** Informatics is the interdisciplinary study of the design, implementation, use, and impact of information technology in fields as diverse as medicine, music, ecology, aerospace, and finance. The curriculum begins with a core set of courses covering foundational concepts and techniques which prepare students to solve large-scale information and software design problems. Students choose from one of three specializations to direct their upper-division coursework: software engineering, human-computer interaction, or the study of organizations and information technology. In their senior year, students complete a year-long, team-based senior design project, typically working with an outside client.

**Information and Computer Science:** The ICS major provides students with a broad introduction to the fundamentals of computing, such as principles of programming, computer system design and networking, software engineering, and human-computer interface. Students complete degree requirements with electives in advanced mathematics, computer science topics, and project-based courses. ICS majors may choose to augment their studies by completing the

required courses for one or more specializations: Artificial Intelligence, Computer Systems, Implementation and Analysis of Algorithms, Information Systems, Networks and Distributed Systems, Optimization, and Software Systems.

### ICS Undeclared Pre-Major (for freshmen only)

A new freshmen who wants to explore his or her interests in computer science and information technology may apply as an ICS Undeclared Pre-Major. An academic counselor will help the ICS Undeclared pre-major structure a first-year academic plan that includes a core set of lower-division computer science and math courses common to most Bren School majors. Note, however, that students interested in the Computer Science and Engineering major are strongly encouraged to start off in that major at the time they enter UCI.

### Not Sure Which Major is Right for You?

Visit or call the Bren School of ICS undergraduate counselors in the Student Affairs Office (Information and Computer Science Building I, Suite 352, (949) 824-5156, or email at ucounsel@uci.edu. The counselors will help you explore the majors, and inform you about events for prospective students. The Associate Dean for Student Affairs is also available to provide a faculty member's perspective about the academic degree options and on ways to best meet your academic, research and career goals.

### Complementing the Bren School Undergraduate Experience

There are several ways to add depth, scope, and experiential learning to your academic program of study.

An academic counselor will help a student determine the most efficient way to add another major, minor, or concentration to his or her academic plan.

A concentration is a program of interdisciplinary study consisting of courses offered by two or more schools. Each of these concentrations requires 8 courses:

- **Game Culture and Technology** (for students majoring in Computer Science, Informatics, Information and Computer Science, and Studio Arts). Admission, by a competitive review process, is open only to continuing students.
- **Engineering and Computer Science in the Global Context** (all Bren ICS majors may propose an academic plan that includes coursework and a guided internship experience in a region outside the U.S.).

Students inside and outside of the Bren School of ICS may want to pursue a minor, a coordinated set of courses which together take a student well beyond the introductory level in an academic field, subject, and/or discipline.

- Biomedical Computing (10 courses)
- Informatics (8 courses)
- Information and Computer Science (7 courses)
- Statistics (7 courses)

Note: Some minor requirements may be fulfilled by the student's major requirements. Some major/minor combinations are not allowed.

The **Bren School of ICS Honors Program** allows selected juniors and seniors to pursue advanced work in one of many research areas. Students admitted to the program participate in an honors seminar, conduct independent research under the guidance of a faculty member (for a minimum of two quarters), and write a research paper for review by the faculty advisor and the Honors Program advisor. Successful completion of the Bren School Honors Program earns the student a certificate and medal from the school, and special notation on the student's transcript. More information is available at [www.ics.uci.edu/ugrad/honors/index.php](http://www.ics.uci.edu/ugrad/honors/index.php).

Additionally, Bren School students may broaden their educational experience by participating in other programs for which they meet the eligibility guidelines. Examples include: Campuswide Honors Program, Education Abroad Program, UCI California Teach Initiative, UCI SAGE (Student Achievement Guided by Experience) Scholars Program, and Undergraduate Research Opportunities Program (UROP).

### Bren ICS Student Leadership and Involvement Opportunities

The Bren School is very proud of its active and involved student body. Our student groups provide opportunities for service, teamwork, leadership development, and networking with other students, faculty, and community service organizations.

- Association for Computing Machinery student chapter (ACM) - [www.acmuci.org](http://www.acmuci.org)
- ACM SIGGRAPH student chapter - [www.ucf.ics.uci.edu](http://www.ucf.ics.uci.edu)
- Bren ICS Student Ambassador Program - <http://ambassadors.ics.uci.edu>
- ICS Theme House, Arroyo Vista - [www.housing.uci.edu/av/theme.asp](http://www.housing.uci.edu/av/theme.asp)
- Informatics Students Association (INSA) - <http://clubs.uci.edu/insa>
- Institute of Electrical and Electronics Engineers student chapter - [www.clubs.uci.edu/ieee](http://www.clubs.uci.edu/ieee)
- Undergraduate Computing Federation (UCF) [www.ucf.ics.uci.edu](http://www.ucf.ics.uci.edu)
- Video Game Development Club - <http://vgdc.sourceforge.net>
- Women in Computer Sciences (WICS) - [www.ics.uci.edu/~wics](http://www.ics.uci.edu/~wics)

### Career Exploration and Preparation

Each quarter, the Bren School of ICS works with the UCI Career Center, industry contacts and ICS-affiliated student clubs to coordinate company information and recruiting sessions, which provide:

- First-hand information about the variety of industries interested in recruiting majors from the Bren School;
- Networking opportunities with industry professionals;
- Resume preparation and interviewing skills.

UCI Career Center ([www.career.uci.edu](http://www.career.uci.edu)) services include tool-based assessment, consultation with professional counselors, an On-Campus Interview Program and graduate and professional school preparation.

The Bren School of ICS offers its students a unique service through its independent employment portal, [ics.jobs](http://ics.jobs). Companies seeking to hire students for internships or full- or part-time positions advertise their openings at [www.ics.uci.edu/community/icsjobs/](http://www.ics.uci.edu/community/icsjobs/).

Bren School undergraduates are eligible to participate in MentorNet, an award-winning mentoring program that facilitates student access to a professional in an academic, industry, or government setting willing to share "real world" experience, encouragement, advice and access via one-on-one, email-based mentoring.

### State-of-the-Art Facilities and Computing Resources

Donald Bren Hall, a six-story building completed in 2007, houses classrooms, faculty offices, research labs, and meeting spaces. The building's innovative use of space and technology is designed to promote faculty/student interactions and facilitate collaborative scholarly work.

The school supports a wide range of instructional machines including UNIX servers and workstations, more than 250 PCs and several specialized labs. The school's wireless network facilitates 100% signal coverage throughout the Bren School complex.

All UCI students have access to UCI's computing resources at Network and Academic Computing Services (NACS) and in the UCI Libraries. The campus dial-up lines provide support for home connections to campus accounts as well as to systems in the school.

### Additional Information

#### Donald Bren School of Information and Computer Sciences

Student Affairs Office  
ICS Building I, Suite 352  
University of California  
Irvine, CA 92697-3430  
Telephone: (949) 824-5156  
[www.ics.uci.edu](http://www.ics.uci.edu)

#### Admissions and Relations with Schools

204 Aldrich Hall  
University of California  
Irvine, CA 92697-1075  
Telephone: (949) 824-6703  
[www.admissions.uci.edu](http://www.admissions.uci.edu)

#### General Campus Information

Telephone: (949) 824-5011  
[www.uci.edu](http://www.uci.edu)

#### UCI General Catalogue

UCI Bookstore  
Telephone: (949) 824-2665  
[www.book.uci.edu](http://www.book.uci.edu)  
[www.editor.uci.edu/catalogue](http://www.editor.uci.edu/catalogue) (PDF Version)

**Accommodations:** Upon request, this publication will be made available in alternative formats for people with disabilities. Contact the UCI Disability Services Center; telephone (949) 824-7494, TDD 824-6272. The campus and all buildings are accessible by wheelchair.

**Campus Safety:** Pursuant to the Federal Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, UCI annually makes available to the public statistics on reported occurrences of criminal activity on and off campus and at UCI Medical Center at [www.police.uci.edu/awareness/jca.html](http://www.police.uci.edu/awareness/jca.html).

**Nondiscrimination Policy:** The University of California, in accordance with applicable Federal and State law and University policy, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy, physical or mental disability, medical condition (cancer related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services. The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities. For more information, call (949) 824-5594.