

# COMPUTER SCIENCE: COMPUTER GAME DESIGN 2009-10



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## UNIVERSITY OF CALIFORNIA, SANTA CRUZ

### THE COMPUTER SCIENCE: COMPUTER GAME DESIGN MAJOR

This interdisciplinary program provides students with a deep understanding of the technical aspects of computer game engineering and a broad background in the artistic, narrative, and dramatic elements of game design.

### STUDY AND RESEARCH OPPORTUNITIES

- ◆ B.S.
- ◆ Year-long, team-based design project
- ◆ UC Santa Cruz is the only UC campus to offer a full degree program in computer game design.

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### ADMISSION TO THE JACK BASKIN SCHOOL OF ENGINEERING (BSOE)

Please see the current *UC Santa Cruz General Catalog* for a full description of the BSOE admissions policy.

**Freshman Applicants:** Admission into a BSOE major is based on high school grade point average, test scores, courses completed in mathematics and sciences, and/or the personal statement. Applicants who are not accepted into the major at the time of admission to UCSC may still reapply for admission to the major after enrolling at UC Santa Cruz.

**Transfer Applicants:** Admission into the major will be based on the student's academic college record. Applicants are encouraged to take and excel in as many courses that are equivalent to the department's foundation courses as possible (see *Transfer Preparation* section). An applicant will be approved, conditionally approved, or declined. Only students who have completed most or all of the foundation courses will be approved or conditionally approved for the major.

### HIGH SCHOOL PREPARATION

It is recommended that high school students intending to apply to the BSOE have completed four years of mathematics (through advanced algebra and trigonometry) and three years of science in high school, including one year each of chemistry, physics, and biology. Comparable college mathematics and science courses completed at other institutions may be accepted in place of high school preparation. Students without this preparation may be required to take additional courses to prepare themselves for the program. While a background in computer programming is a plus, note that students with no programming experience can still successfully complete the degree program, and there are pathways designed specifically for such students.

### TRANSFER PREPARATION

The BSOE strongly encourages applications from transfer students. Due to the prerequisite structure for upper-division courses, it is necessary for prospective transfer students to have completed as many of the lower-division requirements for the respective majors as possible to complete the degree within a reasonable time. Students must plan carefully because many courses must be taken sequentially. Applicants must take and excel in as many courses that are equivalent to the department's foundation courses as possible. UC Santa Cruz foundation courses in computer science: computer game design are:

- Computer Science 12A/L, *Introduction to Programming with Laboratory*, and 12B/M, *Introduction to Data Structures with Laboratory*
- Computer Engineering 16, *Applied Discrete Mathematics*
- Mathematics 19A and 19B, *Calculus for Science, Engineering, and Mathematics* (two quarters)

Transfer students should not follow the Intersegmental General Education Transfer Curriculum (IGETC) because it will not provide transfer students with enough mathematics and engineering courses to allow them to complete these programs at UC Santa Cruz in two years.

In addition to the foundation courses required for admission, some transfer students may choose to take other articulated lower-division courses for the major. Such courses are listed on the web site [www.assist.org](http://www.assist.org). For a complete list of lower-division courses for the major, visit [www.cs.ucsc.edu/game-design](http://www.cs.ucsc.edu/game-design). Students are encouraged to take courses on 2D and 3D computer art and tools prior to transferring to UC Santa Cruz, even if these classes do not articulate to existing UCSC courses.

## CAREERS

Computer game engineering	Software engineering
Computer game design	Web development
Computer game producer	Database system design, development, and administration
Animation and graphics programming	
Computer systems design, development, and administration	<i>These are only samples of the field's many possibilities.</i>

## INTERNSHIPS, FIELDWORK, AND EDUCATION ABROAD OPPORTUNITIES

Many students find internships and fieldwork to be a valuable part of their academic experience. They work closely with faculty and career advisers in the UC Santa Cruz Career Center to identify existing opportunities and often to create their own internships with local companies or in nearby Silicon Valley. For more information about internships, visit [intern.ucsc.edu](http://intern.ucsc.edu).

BSOE students may wish to develop their cross cultural competency, typically via the Education Abroad Program (EAP). Interested students must work very closely with the faculty and academic advisers in their major very early during the freshman or sophomore year to create a plan for transferability of course work towards graduation. For more EAP information, visit [eap.ucop.edu/our\\_programs/countries](http://eap.ucop.edu/our_programs/countries).

## GAME DESIGN STUDIO

Students in the program have access to the new game design studio. This facility boasts high-end game development workstations, as well as stations featuring notable classic and current game consoles, and a library of games with noteworthy design qualities. The studio provides an environment for deep study of existing games, and for working in teams to develop new game design concepts.

## LIBRARY COLLECTION OF COMPUTER GAMES

The Science and Engineering Library hosts a lending collection of over 550 computer game titles, spanning a range of game eras and genres. The collection has particular depth in computer role playing games, platform games, and 2D space shooters. A game room in the library contains examples of all significant current and historical game consoles. Game consoles are available for checkout, including Wii, Xbox 360, and Playstation 3.

## RECOGNITION

Associate Professor Michael Mateas' game *Facade* is the genre-defining example of interactive drama. The game has received considerable critical acclaim, winning the Grand Jury Prize at the Slamdance Indie Games Festival in 2006, and favorable press coverage in the *New York Times*, the *Atlantic Monthly*, the *Economist*, and *Newsweek*.

Assistant Professor Noah Wardrip-Fruin's books *First Person*, *Second Person*, and *Third Person* are influential collections of essays on game studies. His book *New Media Reader* is widely used as a textbook for introductory digital media classes worldwide. According to prominent game designer Will Wright, Wardrip-Fruin's most recent book, *Expressive Processing*, provides a "critical language and framework for understanding interactive media."

Professor Charlie McDowell and Hierarchical Systems Research Foundation's David Doshay have developed *SlugGo*, one of the world's top computer Go playing programs.

Professor Robert Levinson's research on adaptive pattern-oriented learning has allowed him to develop *Morph*, a chess playing system that learns to play respectable chess from its experience only.

Associate Professor Warren Sack's digital media project, *Translation Map*, was presented at the Walker Art Center in Minneapolis, and positively reviewed in the *New York Times*.

Associate Professor Jim Whitehead was the General Chair of the 2009 International Conference on the Foundations of Digital Games.

Assistant Professor Arnav Jhala performs research on artificial intelligence techniques for automatic camera placement in 3D scenes.

## FOR MORE INFORMATION

For further information about the computer science: computer game design major, see:

[reg.ucsc.edu/catalog/html/programs\\_courses/cmPS.html](http://reg.ucsc.edu/catalog/html/programs_courses/cmPS.html)

The computer game design web site can be found at:

[www.cs.ucsc.edu/game-design](http://www.cs.ucsc.edu/game-design)

If you have other questions, contact:

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