

# PHYSICS 2009-10



## UNIVERSITY OF CALIFORNIA, SANTA CRUZ

### THE PHYSICS MAJOR

The Physics Department provides a first-rate undergraduate program with excellent acceptance rates of undergraduates into top graduate schools in this country and abroad. The department also offers an astrophysics major, an applied physics major, and a physics education major. Curriculum sheets describing physics program requirements are available from the Physical and Biological Sciences Undergraduate Affairs web site at *undergrad.pbsci.ucsc.edu*.

### STUDY AND RESEARCH OPPORTUNITIES

- ◆ B.S., M.S., Ph.D., and undergraduate minor
- ◆ The number of research opportunities for physics undergraduates is exceptionally high.
- ◆ The senior thesis requirement enables students to interact professionally with faculty in a research environment.

### WHAT MAKES UC SANTA CRUZ'S PHYSICS PROGRAM UNIQUE

In a recent report by the Institute for Scientific Information, UC Santa Cruz Physics' professional papers had the highest citation rate of any university physics department in the country between 1994 and 1998. With our close connection to the Santa Cruz Institute for Particle Physics (SCIPP) and scientific associations with Stanford Linear Accelerator Center (SLAC) and Stanford Synchrotron Radiation Laboratory (SSRL) at Stanford, the UC Observatories, and various x-ray and neutron scattering centers at national laboratories, we continue to provide exceptional research opportunities to our students. In addition, the department's open-door policy between students and faculty is considered one of its greatest assets. Physics undergraduates have access to all professors, including the department chair, at any time during their academic career.

### CAREERS

Astronomy	Medicine
Biophysics	Research and
Computer science	development
Engineering	Teaching
Geophysics	
Law	<i>These are only samples of the</i>
Mathematics	<i>field's many possibilities.</i>

### RECOGNITION

Professor of physics Joel R. Primack, a Fellow of the American Physical Society and of the American Association for the Advancement of Science, is a cosmologist and an expert in quantum field theory and particle astrophysics, a field that he has helped to create. Professor of physics and director of the Santa Cruz Institute for Particle Physics (SCIPP) Abe Seiden (Ph.D., physics, '76) was selected to chair the Particle Physics Project Prioritization Panel (P5), which advises the national program of particle physics research.

### HIGH SCHOOL PREPARATION

High school students wanting to major in physics should come to UC Santa Cruz prepared to take calculus in their first quarter in order to concurrently take the Physics 5 series, calculus-based physics for physics majors.

### TRANSFER PREPARATION

Transfer students can best prepare by taking courses equivalent to the lower-division requirements for the physics major. Due to the prerequisite structure for upper-division courses, it is necessary for prospective transfer students to have completed all, or as many of the lower-division requirements for the major as possible to complete the degree within a reasonable time. In addition, transfer students must complete courses equivalent to the Physics 5 series, calculus-based physics for physics majors, with a GPA of 2.7 or higher before they will be permitted to enter a physics major, effective with Catalog year 2009-10. This will not necessarily affect physics transfer students entering fall 2009, since they can elect Catalog rights up to three years previous to their enrollment.

The Intersegmental General Education Transfer Curriculum (IGETC) will not provide transfer students with enough mathematics and science courses to allow them to complete the program at UC Santa Cruz in two years. Prospective transfer students should visit the Physical and Biological Sciences Undergraduate Affairs web site at *undergrad.pbsci.ucsc.edu* for further information (see the *For More Information* section). In addition, please see the *Lower-Division Requirements* section.

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## LOWER-DIVISION REQUIREMENTS

The required lower-division courses for the physics major are normally completed during the first two years at UC Santa Cruz:

- Physics 5A/L, *Introduction to Physics I with Laboratory*
- Physics 5B/M, *Introduction to Physics II with Laboratory*
- Physics 5C/N, *Introduction to Physics III with Laboratory*
- Physics 5D, *Heat, Thermodynamics, and Kinetics*
- Mathematics 19A-B, *Calculus for Science, Engineering, and Mathematics* (two quarters), or Mathematics 20A-B, *Honors Calculus* (two quarters)
- Mathematics 23A-B, *Multivariable Calculus* (two quarters)

## ACADEMIC ADVISING

Academic advising is available from Physical and Biological Sciences Undergraduate Affairs. Undergraduate Affairs publishes the web site [undergrad.pbsci.ucsc.edu](http://undergrad.pbsci.ucsc.edu), which contains detailed information about the degree programs, sample schedules, transferring credit, placement exams, faculty research, and opportunities in the Physical and Biological Sciences majors.

## FOR MORE INFORMATION

For further information about the physics major, see:  
[reg.ucsc.edu/catalog/html/programs\\_courses/physPS.html](http://reg.ucsc.edu/catalog/html/programs_courses/physPS.html)

Information about the physics major can be found at:  
[undergrad.pbsci.ucsc.edu/programs/physics](http://undergrad.pbsci.ucsc.edu/programs/physics) or by e-mailing [physicsadvising@ucsc.edu](mailto:physicsadvising@ucsc.edu).

For specific information regarding Physics Department faculty and research, please visit the department web site at:  
[physics.ucsc.edu](http://physics.ucsc.edu).

If you have other questions, contact:  
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