

# PHYSICS AND ASTRONOMY

*College of Natural Sciences and Mathematics*

## Program Description

Physics is the most fundamental science and underlies our understanding of nearly all areas of science and technology. In a broad sense, physics is concerned with the study of energy, space, and matter, and with the interactions between matter and the laws that govern these interactions. More specifically, physicists study mechanics, heat, light, electric and magnetic fields, gravitation, relativity, atomic and nuclear physics, and condensed matter physics.

The Department of Physics and Astronomy at Sacramento State offers four degree programs: the BS in Physics, a BS in Physics with a concentration in Applied Physics, the BA in Physics, and the BA in Physics, Physics Teacher Concentration. The Department also offers Minor programs in Physics and Astronomy and Certificates in Scientific Instrument Development and Scientific Computing and Simulation. The BS degrees are recommended for students seeking a career in the technology sector or planning to pursue a graduate degree. The BA degree is recommended for students who are interested in teaching Physics in high school or who want a liberal arts education with an emphasis in Physics. Physics majors are encouraged to take additional mathematics and to develop skills in the use of computers.

Approximately 40 percent of the graduating physics majors from Sacramento State continue on to graduate school earning advanced degrees in Physics, Mathematics, Engineering, Environmental Science, Medicine, or Business. Another 50 percent find job opportunities in industrial and government laboratories or agencies. The remaining 10 percent obtain their teaching credential.

## Degree Programs

Astronomy (<http://catalog.csus.edu/colleges/natural-sciences-mathematics/physics-astronomy-physical-science/astronomy/>)

Physics (<http://catalog.csus.edu/colleges/natural-sciences-mathematics/physics-astronomy-physical-science/physics/>)

## Special Features

- In addition to providing a broad academic background and facility in analytic thinking, the study of physics fosters and emphasizes independent study experiences. Most physics students at Sacramento State typically spend a year working on a Senior Project, often in conjunction with a faculty member. These independent projects not only provide a vehicle for applying material learned in class and give students experience in electronics, measurement systems, computers, and machine shop work, but also teach students to work and think on their own. Faculty in the Department have been active in research in atomic physics, astrophysics, biophysics, condensed matter physics, high energy physics, instrumentation, liquid crystals, low temperature physics, optics, and physics education research.
- An advising system has been established by the Department of Physics and Astronomy to help students plan their schedules each semester, to discuss independent project possibilities, and to provide career and current job information. Because of the large number of sequential courses in the degree programs, the Department requires that each student contact his/her advisor before registering for

classes each semester. Any student without an advisor should contact Professor Christopher Taylor in Sequoia Hall 230, or call (916) 278-6518.

## Career Possibilities

A degree in physics will prepare you for a wide range of careers. The advanced problem solving, technical, and communication skills one develops alongside the physics knowledge in our degrees are highly valued by many industries. Recent graduates from our programs have an extremely diverse range of careers including: faculty members at colleges and universities, employees at National and State Laboratories and Agencies, teachers at middle and high school, engineers, scientific technicians, analysts, technical writers, computer programmers, and science policy.

## Contact Information

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