

# SAN FRANCISCO STATE UNIVERSITY

# COLLEGE OF SCIENCE & ENGINEERING

## About Us

The College of Science & Engineering (CoSE) is a center of engagement, opportunity and scholarly activity offering its students outstanding opportunities for learning and discovery that are rewarding, academically rigorous and intellectually challenging. It is home to more than 7,000 students and 400 faculty and staff members, including 182 tenured and tenure-track faculty members. CoSE instructors foster a welcoming, inclusive teaching and research environment and promote hands-on, real-world experiences to prepare students for the competitive job market. Students train with faculty members who are leaders in their fields and who support education and research by attracting significant amounts of funding (\$30–\$40 million annually) from federal, state and private sources.



## Our Students

Our students are highly diverse: 48 percent of undergraduates are female, 71 percent are ethnic minorities and 39 percent are from underrepresented groups. Students can enroll in 30 different B.A. and B.S. degree programs in Science, Technology, Engineering and Mathematics (STEM) and social and behavioral sciences. They can also join over 340 student organizations, clubs and professional societies.

### Support for Students

The college awards over \$140,000 in annual scholarships to its undergraduate and graduate students and provides them access to internships and numerous on- and off-campus opportunities for learning.

- A Student Success Center offers students both academic and career advising to give them the resources they need to get ahead.
- To promote academic success in difficult courses, the college supports a series of one-unit Supplemental Instruction courses where instructors help students learn concepts through hands-on and interactive small group work.

### Opportunities for Research and Scholarly Activities

Students in the college have many opportunities to engage in activities that are at the forefront of STEM research and education.

- Students present their research findings at local, regional, national and even international conferences.

- Train on state-of-the-art instrumentation.
- Co-author publications that enable them to compete for employment in local industries and to enter highly-regarded Ph.D. programs.

### Promotes Inclusivity

The SF BUILD program — a partnership with the University of California, San Francisco — was created to enhance diversity in the biomedical research workforce. Efforts funded by the Howard Hughes Medical Institute and the Center for Science and Math Education promote inclusivity in the classroom, while another program, PINC (Promoting Inclusivity in Computing), works to ensure that all students can acquire foundational computer science knowledge. Students from underrepresented groups access additional academic support and lab experience through the college's Student Enrichment Opportunities office, encouraging the diverse perspectives that are needed to solve the complex problems facing the world today.

## CoSE Programs

In the **Department of Biology**, students research human health benefits, the communities we live in, the environment and the health consequences of social disparities. They investigate the ecology of microbes and parasites that cause Lyme disease, malaria and ongoing extinctions of amphibians worldwide. Students use cutting-edge tools in genetics, bioinformatics and molecular biology to understand evolution, behavior and the biology of diseases like cancer. They go on to pursue careers in research, teaching, biotechnology, environmental advocacy and the health professions.

The **Department of Chemistry and Biochemistry** trains students in the atomic and molecular sciences. Students work with faculty to build molecules that fight cancer, redesign proteins to be effective drugs and develop techniques to identify toxins in the local community. Many chemistry and biochemistry students go on to successful careers in research, medicine, education and policy.

In the **Department of Computer Science**, students obtain a strong foundation in computer science while participating in project- and team-oriented activities. Students organize the largest collegiate hackathon in San Francisco. The Entrepreneurship Competition supports the development of student projects into business or nonprofit ventures. Graduates from this program have joined many Bay Area tech companies.

In the **Department of Earth and Climate Sciences**, students learn about the Earth's oceans, atmosphere, geology and climate. Every student has the opportunity to work with a faculty member on an independent research project to demonstrate their scientific skills to

their peers and potential employers through various conferences. Graduates are prepared to work for environmental firms or government agencies.

The **School of Engineering** offers four ABET-accredited degree programs (mechanical, electrical, civil and computer engineering) which prepare students for employment at Fortune 500 companies including Apple, Google, Tesla and Genentech. In the public sector, students work for BART, NASA and the SFMTA.

The **Department of Geography and Environment** offers degree programs that focus on applied research in geography and environmental science both locally and around the world. It's home to the Geographic Information System (GIS) Specialty Center, the lead geographic center in the California State University system. Many of the department's graduates become environmental scientists or managers for NGOs, in industry or in government.

The **Department of Mathematics** trains students for careers in business, government and education as well as for graduate study in mathematical sciences Ph.D. programs. Select students attend summer programs at the world-famous Mathematical Sciences Research Institute in Berkeley. Several student organizations— including Matematistas led by female mathematicians— encourage an atmosphere of learning and research and serve as networks for mathematics students.

In the **Department of Physics and Astronomy**, students engage in exciting research in a variety of fields. In astrophysics, they analyze data from the Hubble, Kepler and Chandra Space Telescopes. In particle physics, they have the opportunity to go to CERN

in Geneva, Switzerland. In quantum optics and solid state physics, they use the department's laser laboratories. Graduates go on to work at companies like Space X and enter some of the best graduate programs in the country.

In the **Psychology Department**, students work with faculty mentors in over 20 research-active laboratories. They participate in fieldwork and present their work at conferences and showcases. After graduating, students go into doctoral programs or find employment in industry, schools, mental health agencies and increasingly in technology companies like Google, LinkedIn and Facebook.

At the **Estuary & Ocean Science (EOS) Center**, students conduct research to sustain our blue planet and solve environmental problems for populations that depend on coastal and ocean resources. Students use underwater oceanographic equipment, remote sensing technologies, scientific diving and boating. They launch careers in environmental research, science education and natural resource management and policy.

In the **Center for Science and Math Education (CSME)**, students find opportunities for science learning and teaching. Through the Teacher Fellows program co-led by CSME and the Graduate College of Education, students can join a community of aspiring teachers who are passionate about science education.

The **Science Education Partnership and Assessment Laboratory (SEPAL)** provides students with hands-on science education training through partnership programs that involve instruction from elementary through the college level. It also provides resources that can be used in classroom instruction.

