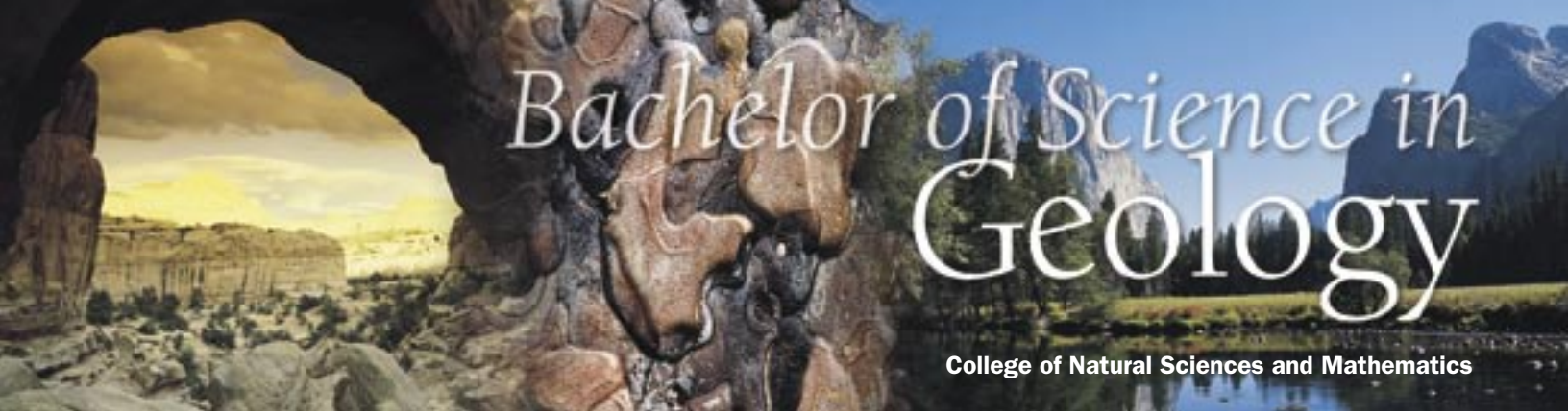

Bachelor of Science in Geology

College of Natural Sciences and Mathematics

Why major in geology?

Geological sciences are the sciences that study Earth, its physical and chemical composition and its history, including Earth's development within the solar system. Geologists are particularly interested in the geological processes that have formed Earth and will continue to modify it in the future. In addition to understanding the way Earth works and its relation to the solar system, geological scientists are involved in the search for energy, minerals and water resources, the evaluation and remediation of environmental hazards, and the prevention and/or prediction of natural disasters such as earthquakes, volcanic eruptions, landslides, coastal erosion and floods.

The Department of Geological Sciences at California State University, Fullerton offers a program leading to the Bachelor of Science degree in Geology. The program is designed to provide a solid foundation in the geological sciences with elective course sequences that prepare students either for graduate study or for occupations in industry, business, government and education. Graduate studies are available leading to a Master of Science in Geology.

Geological scientists need not go far to reach the frontier of knowledge. What is not known about the geology of Earth far exceeds what is known. Why should you major in such a science? Because geology is a science specialty that is oriented toward outdoor field research that combines the latest in technology with an understanding of the environment. Moreover, even a B.S. degree provides access to excellent career paths.

Why choose Cal State Fullerton?

The Geological Sciences Department is the only baccalaureate-granting geology department in Orange County. The quality of the program is attested to by the large percentage of its graduates who achieve advanced degrees, and the many alumni working as professionals in Orange County. Over 95 percent of graduates in the past five years are in graduate school or are employed in the geosciences, and our majors consistently score well above the national norm on the Graduate Record Exam (GRE). The department emphasizes

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close, personalized interaction at all levels of its undergraduate curriculum. The friendly setting, along with small class size and relatively small number of majors, ensures a solid learning environment. Field studies and an active student-run geology club are an integral part of this learning environment.

What's special at Cal State Fullerton?

Geology at Cal State Fullerton is taught in a very personal and field-oriented way. Students get to know their professors and other students during field trips and at geology functions. The department involves students in research as part of a professor's research and to complete a required Senior Thesis project. These research efforts prepare the student for further academic study and also for careers that most often require the individual to write well and to plan and execute logistically-sound field efforts. CSUF's Department of Geological Sciences has established a field camp near Dillon, Montana that provides a base for the study of the geology of the western United States. We also have a strong environmental emphasis capped by a summer field experience in hydrology. Students camp and participate in environmental research related to surface and ground water hydrology of an area such as Mammoth Lakes, Calif.

What career opportunities are available?

Geological scientists are well trained in related disciplines such as biology, chemistry, computer sciences, mathematics, and physics. This training allows the geologist to have a broad-based view of most scientific problems. With this diverse training, a geologist is often the best equipped scientist to make logical and rational decisions on difficult and challenging problems.

Geologists, per se, often use other titles, depending on their area of specialization. The geologist may be called a seismologist, paleontologist, oceanographer, geochemist, geophysicist, volcanologist, engineering geologist or soil scientist. All of these, and numerous other specialties, are based upon the science of geology. The large number of titles by which geologists are called indicates the diversity of possible careers. In addition, there are many other career opportunities that do not specifically require training as a geologist, but rather require the logical thinking skills that a geologist possesses.

A geology degree qualifies students for one of many rewarding, well-paying, and exciting careers. Because of the diversity within the geological sciences, numerous career opportunities are usually available. About 60 percent of geologists are employed in private industry with the remainder employed by government agencies and educational institutions. Within private industry, geologists are hired by firms such as engineering, mining or petroleum companies. Many geologists are also employed in consulting firms that work on challenging problems in engineering geology or in various environmentally sensitive aspects of hazardous waste disposal and hydrogeology.

Opportunities are available within private industry for those who desire to own and operate their own firms. Government agencies, from local to federal levels, have many diverse and challenging opportunities for geologists,

particularly in environmental geology. For those who enjoy teaching, geologists find opportunities at all levels of education.

What courses are required?

The Bachelor of Science in Geology consists of 48 units in geological science and 34 to 37 units in related fields such as biology, chemistry, computer science, mathematics and physics. These courses have been selected to prepare students for (1) graduate studies in geology or related subjects such as geochemistry, geophysics, hydrogeology or oceanography; (2) employment in one of the many areas of the geological sciences; and, (3) teaching in the geological or Earth sciences.

Required Courses

Geol Sciences 101 Physical Geology (3)
Geol Sciences 101L Physical Geology Lab (1)
(Geol Sciences 120 and 120L Introduction to Earth Science with a grade of B or better and may be substituted for Geol Sciences 101/101L)
Geol Sciences 201 Earth History (4)
Geol Sciences 303A Mineralogy & Introduction to Petrology (4)
Geol Sciences 303B Igneous and Metamorphic Petrology (4)
Geol Sciences 321 Sedimentation & Stratigraphy (4)
Geol Sciences 360 Structural Geology (4)
Geol Sciences 380 Geologic Field Techniques (4)
Geol Sciences 401 Writing in the Geosciences (3)*
Geol Sciences 406 Geochemistry (3)
OR Geol Sciences 456 Introduction to Applied Geophysics (3)
Geol Sciences 481A Geology Field Camp I (4)
Geol Sciences 498 Senior Thesis (1-2)

* Meets requirements for upper-division writing course

Adviser-approved Upper-division Geological Sciences Electives (8-9 units)

Elective courses in geological sciences are chosen carefully in consultation with your adviser. For graduation requirements, no more than 3 units from any combination of Geol Sciences 495, 496L and 499L may be counted. In addition, Geol Sciences 310, 376 and 420 may not be used to meet the requirements for graduation.

Requirements in Related Fields and Undesignated Units

For graduation in geological sciences, a minimum of 9 courses (34-37 units) in related fields are required. Of these, 8 courses are specified and one course is selected in consultation with your adviser. Related fields include calculus, physics, general chemistry, biology, as well as geography, computer science and engineering. An additional 8 to 11 units are required for graduation. Courses are to be taken in geological sciences, related fields and/or career-support fields. These courses are selected in consultation with an adviser and are dependent, in part, on high school and/or prior community college/ university course work and career objectives.

Minor in Geological Sciences

A minimum of 20 units in geological sciences courses is required for a minor, of which at least 12 must be taken in upper division and at least 6 of these 12 must be taken in residence. The courses shall be selected by the student in consultation with an adviser. Geol Sciences 140, 310 and 376 are not acceptable as part of the 20 units.

What are the requirements for prospective Earth science teachers?

Students interested in pursuing a teaching credential in Earth science for teaching 7th to 12th grades should examine the secondary education requirements in the university catalog and consult with the department's Earth science education adviser. Courses are taken that meet breadth and concentration requirements, which are met as the student completes the B.S. in Geology. At least 80 percent of the breadth and concentration requirements must be met before the student is eligible to apply to the teacher education program (the professional fifth year). A grade of "C" or better is required in all courses. It is expected that the prospective applicant will apply to the teacher education program with a grade point average that is in the upper one-half of their peers.

Who advises me?

We do! Each student who comes to CSUF is advised by one of the faculty and a plan is developed for a curriculum that lets the student achieve his or her goals. We are sensitive to the special needs of some students and can often help students through intern positions or career-related work, as well as some financial aid. Advisement is an on-going process and each student is required to come in for advisement each semester, so that both the student and the department are aware of the student's progress. Through the course work, the student develops a specialization interest and will then begin to work more exclusively with a single professor. They will then develop a preliminary project for senior research and the student will submit a proposal to the department as well as seek funding, if necessary. We have found this to be a very successful model for seeing that students matriculate in a timely manner.

How can I learn more?

For further information, contact the Department of Geological Sciences at (714) 278-3882, or write to:

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You may also visit the Geological Sciences Department website at geology.fullerton.edu