Geology, M.S.

DEPARTMENT

Department of Earth and Environmental Sciences

Robert Dundas, Chair
Science II Building, Room 114
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MN in Geology, Minor
BS in Geology, B.S.
MS in Geology, M.S.
BS in Environmental Sciences, B.S.
MS in Water Resource Management, M.S. - Continuing & Global Education
CERT in Geographic Information Systems, Certificate of Adv Study - Continuing & Global Education
CRED in Single Subject Credential - Geological Science

The Department of Earth and Environmental Sciences at California State University, Fresno offers courses leading to the Bachelor of Science and Master of Science in Geology -- as well as the Bachelor of Arts in Natural Sciences and the Minor in Geology -- which are especially well-suited for primary and secondary teachers.

Coursework and research emphasize field and laboratory investigations of geologic and environmental problems. Our field orientation takes advantage of the university's proximity to the Sierra Nevadas, the California Coast Ranges, coastal California, and the desert provinces. This unique location gives faculty and students access to an unparalleled outdoor laboratory, all within short trips from the university.

The department's close relationship with state agencies and the private sector enables many students to pursue internships or part-time employment in geologic and environmental work while they complete their degrees.

The Bachelor of Science in Geology prepares students for employment in petroleum geology, mineral exploration, land-use planning, environmental assessment, hydrology, and engineering geology, or for teaching earth science or physical science at the secondary level. The Master of Science program provides a graduate degree for students who want to work in industry or government on the professional level, for students who want to teach earth science in junior college, or for students who wish to pursue further graduate study.

Our applied geology option specializes in engineering geology, hydrogeology, or exploration geology fields, which have the strongest employment potential.

The Bachelor of Science in Environmental Sciences offers an interdisciplinary approach to the natural sciences with an emphasis on biology, chemistry, and geology. This degree is designed for students interested in areas such as pollution abatement, water resources, ecosystem protection, restoration, or management.

Students may also participate in coursework and research in marine geology and oceanography offered through Moss Landing Marine Laboratories in Monterey Bay. Consult the chairs of the Earth and Environmental Sciences and Biology departments. See Moss Landing Marine Laboratories, Biology Department.

REQUIREMENTS

Master of Science in Geology Requirements

Graduate Program in Geology

The Department of Earth and Environmental Sciences offers graduate courses and research leading to the Master of Science. The graduate courses and research areas are such that several different career goals can be met, including the following: (1) preparation for enrollment in a Ph.D. program in geology or a related field, (2) preparation for employment as a professional geoscientist with industry or government, and (3) advancement of knowledge of the earth sciences and teaching skills of secondary school and junior college teachers.

Graduate research opportunities are available in several fields, including but not restricted to hydrology/hydrogeology/ hydrogeochemistry, stream restoration, geophysics, tectonics, engineering geology, geomorphology, structural geology,

volcanology/igneous and metamorphic petrology, sedimentology/paleontology/stratigraphy, paleoclimatology and high temperature, and stable isotope geochemistry.

The graduate program also offers research opportunities in applied geology. This curriculum is usually interdisciplinary with an environmental focus, involving coursework in geology, civil engineering, chemistry, soil sciences, and other areas. Two applied geology emphases are offered: (1) engineering and environmental geology and (2) hydrogeology. Students of applied geology are encouraged to undertake theses involving support and supervision by professionals in private and public sectors.

University requirements are met through satisfactory completion of core courses and specialty courses in the curriculum emphasis.

Students are required to pass the writing component of EES 201. Please see the department's graduate program policy and graduate program coordinator for more information.

Master of Science Degree Requirements

The graduate program for the Master of Science in Geology assumes as its foundation the equivalent of the undergraduate major in geology at California State University, Fresno. Two-thirds of the 30 units required for the degree must be in geology, and at least 21 of the 30 units must be 200-series courses. Students will select a thesis adviser to guide their research. The thesis adviser will also guide the selection of coursework in the program. For additional details regarding such requirements and procedures, please see the geology graduate program coordinator and the department's graduate program policy statement; for general requirements see Division of Graduate Studies. (See also Admission to Graduate Standing, Advancement to Candidacy, Program Requirements, and Criteria for Thesis and Project.)
Course Requirements: Under the direction of his/her thesis adviser, and with approval by the department faculty, each student prepares and submits an individually designed program. Most coursework is elective in nature, in keeping with the department's philosophy that flexibility enables students to develop a path of study best suited to their goals. The course requirements are as follows:
EES 201 Seminar in Geology) (3 units)
EES 299 (Thesis) (6 units)
Approved upper-division or graduate course electives in geology or related fields such as biology, chemistry, physics, engineering, and mathematics. Electives determined in consultation with graduate adviser (21 units)
Total (30 units)
Students studying applied geology should take the following courses before or during their graduate experience: EES 114, 117, 124.

Modifications in the program of study may be made with approval of both the thesis adviser and graduate program coordinator.

Additional Requirements.

A master's thesis is required. An oral defense of a thesis proposal is required, to ensure that students have selected a problem that is commendable to an M.S. thesis in the sciences and that the proposed methods of analysis are appropriate to the task. This defense normally will be scheduled as a culminating experience in EES 201, but also can be scheduled outside of EES 201 if necessary. An oral defense of the thesis is also required. The defense will include questions regarding the thesis and questions of a more general nature related to knowledge in the earth sciences. The thesis will be judged by the extent to which a student attempts to solve a scientific problem by employing methods appropriate to the task. The thesis must meet certain minimum standards, which include the following: thoughtful consideration of and reference to prior work in the field of study; a peripheral understanding of the broader scientific value or societal implications of the work, as appropriate; and a demonstration of originality and critical thinking. Graduate students of geology conducting research in a foreign country are expected to be proficient in the language in which source materials are published.

FACULTY

For faculty phone numbers and e-mail, see the campus directory.

For more on the faculty, see the faculty pages.
The faculty pages are updated by the department or program.

Name	Degree	Email	Phone
Anglen, Brandy L	Doctor of Philosophy	banglen@csufresno.edu	
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