

# Master of Science in Geology

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The Master of Science in Geology is designed to provide strong preparation in geological sciences, focused directly on geological study and research. The program is designed so that it can potentially be completed in two years of full-time work. This program is intended for students who wish to pursue graduate level work as a prelude for doctoral studies, or as professional preparation for careers in geological fields.

## Department Graduate Committee and Thesis Advisor

The Geology Graduate Admissions Committee consists of the graduate program coordinator and two or more faculty members available for consultation. This committee will determine whether students are adequately prepared for graduate study in Geology, and has general supervision over the work of students progressing toward the master's degree.

Each new graduate student will consult with the graduate program coordinator for academic advising until the student has been accepted by a thesis advisor. All students are responsible for selecting their thesis advisor and, in turn, must be accepted by the thesis advisor.

Early in their graduate studies, students in consultation with their thesis advisor, will select a thesis committee including the thesis advisor and at least two other faculty from the Department of Geological Sciences. When appropriate, one member of the committee may be a person from another department or another institution who has expertise in the area of proposed thesis research. The student, in consultation with their thesis committee, will develop a program of specific courses and an acceptable thesis proposal based on the student's interests, abilities and preparation. The thesis advisor will guide the research. The program of courses and the research topic, as well as any subsequent modification of these, are subject to approval by the student's thesis committee, the Graduate Coordinator, and the Dean of Graduate Studies. Upon completion of the research, an oral defense consisting primarily of discussion of the thesis research is required. Successful completion of the defense includes acceptance of the final thesis by the thesis committee.

Students enrolled in the graduate program wishing to take courses off campus and include them in the degree program must petition the Graduate Coordinator for approval, otherwise the course may not be accepted as part of the program. Extension courses at the X1000- to X9999-level are not applicable to the graduate program. Courses at the 3000- and 4000-level, other than those specified as possible electives in the program will be accepted only by written approval of the committee. Courses taken to satisfy quantitative or qualitative deficiencies cannot be applied toward a master's degree. Repeat of courses require approval of the Graduate Coordinator and will be granted only for serious and compelling reasons.

## Admission to the Program

Specific requirements for admission to classified graduate status are:

1. A baccalaureate degree from an accredited college or university;
2. We recommend the completion of an undergraduate major in geology or associated field (e.g., geography or environmental studies) with at least 24 semester units of upper-division geology course work. However, students with undergraduate degrees in unrelated fields are

also encouraged to apply and to discuss provisional admission with the Graduate Coordinator or potential faculty mentors. Provisional admission may require completion of upper-division geology or other coursework at CSUSB.

3. A cumulative undergraduate grade point average of at least 3.0 in all courses used for credit in the major;
4. Submission to the Graduate Coordinator of a one-page, typewritten statement of the student's preparation for graduate study, goals in the graduate program, potential area of research and possible advisor, and professional goals following completion of the M.S.;
5. Submission of three letters of recommendation from people who are in a position to make relevant comments on the student's intent and potential for success in the program. At least two of the letters should be from current or former college or university faculty familiar with the student's scholarship and related activities.

Submission of scores from the Graduate Record Examination (GRE) is optional.

Students are considered for admission for the fall semester. Under compelling circumstances, applications may be considered for spring semester. Please consult the Graduate Coordinator for more information.

## Advancement to Candidacy

To be advanced to candidacy, the student must have:

1. Achieved classified status;
2. Been accepted by a major advisor from the M.S. in Geology program;
3. Completed at least 6 semester units of work applicable to the degree program as a graduate student at this university, and with a minimum grade point average of 3.0 ("B");
4. Submitted a formal program of graduate course work, in addition to a thesis proposal, prepared in consultation with and approved by the student's thesis committee, and approved by the graduate coordinator;
5. Gained final approval of the program and of the candidacy itself by the Dean of Graduate Studies.

## Requirements for Graduation

1. A minimum of 30 semester units of acceptable graduate level work included in the formal program, with no less than 21 units completed in residence at this University and with at least 21 units gained from 5000- and 6000-level courses approved by the program;
2. Advancement to candidacy for the degree and approval of the specific program of courses;
3. A cumulative grade point average of 3.0 ("B") in all graduate course work fulfilling the requirements of the program, and a grade of "C" (2.0) or better in each course in the program;
4. Completion and defense of a thesis;
5. The graduation writing requirement is met upon successful completion of the thesis, if not met earlier;
6. Any additional general requirements not cited above and listed in Graduate Degree and Program Requirements (<http://bulletin.csusb.edu/graduate-degree-programs/graduate-degree-program-requirements/>).

## Degree Requirements (30 units)

(Program Code: GEOL)

### Core Courses (6)

GEOL 6000	Advanced Environmental Chemistry and Geosciences	4
or CHEM 6000	Advanced Environmental Chemistry and Geosciences	
GEOL 6900	Graduate Seminar	2
or CHEM 6900	Graduate Seminar	

### Electives (15)

A minimum of 15 units, at least 6 of which are 5000- or 6000-level courses (some of these elective courses have prerequisites that must be satisfied before the course can be taken).

CHEM 5903	Directed Laboratory Research	
CHEM 5200	Instrumental Analysis	
GEOG 3710	Advanced Geographic Information Systems	
GEOG 3730	Geo-Spatial Analysis	
GEOG 4860	GIS and Socio-Economic Applications	
GEOG 4400	Geomorphology	
GEOL 3700	Groundwater Hydrology	
GEOL 3750	Field Methods in Hydrology	
GEOL 4100	Engineering Geology	
GEOL 5000	Advanced Topics in Geology	
GEOL 5000L	Laboratory for Advanced Topics in Geology	
GEOL 5200	Tectonics	
GEOL 5220	Neotectonics and Seismic Hazard Analysis	
GEOL 5240	Volcanology and Volcanic Hazard Assessment	
GEOL 5260	Advanced Structural Geology	
GEOL 5280	Digital Mapping and GIS for Scientists	
GEOL 5300	Microscopy	
GEOL 5400	Environmental Hydrology	
GEOL 5420	Geochemical Thermodynamics	
GEOL 5430	Isotope Geochemistry	
GEOL 5440	Environmental Geochemistry	
GEOL 5460	Low-temperature Geochemistry	
GEOL 5600	Earth Resources	
GEOL 5620	Site Investigation, Siting, and Case Histories in Engineering Geology	
GEOL 5751	Internship in Geology	
GEOL 5752	Internship in Geology	
GEOL 5753	Internship in Geology	
GEOL 5951	Independent Study	
GEOL 5952	Independent Study	
GEOL 5953	Independent Study	
GEOL 6100	Graduate Geological Mapping	
GEOL 6752	Advanced Internship	

<b>Culminating Experience (9)</b>	<b>9</b>
<b>Total Units</b>	<b>30</b>

## Culminating Experience (9 units)

The culminating experience in the M.S. in Geology is a research thesis and defense of the thesis. Students will be encouraged to publish their work in a peer-reviewed journal.

GEOL 6940	Graduate Research Methods and Design	3
GEOL 6950	Directed Graduate Research in Geology	3
GEOL 6970	Graduate Thesis	3
<b>Total Units</b>		<b>9</b>