

Procedures for Master of Science Degree Program

The Department of Geosciences and Environment offers a Master of Science (MS) degree in Geological Sciences with options in Environmental Hydrogeology and the Geology General option. All Masters students can choose from two tracks to complete the MS program; one is completion by Comprehensive Examination, the other is the Thesis track. These two options are explained in detail below.

1. Thesis track. The thesis option involves choosing a committee, conducting a research project, writing and defending a thesis. This track is recommended for students planning to pursue a Ph.D. or high-level industry job. All students must convene a committee of at least three members. Environmental Hydrogeology students must have at least one hydrogeology faculty. General Geology MS students must have at least one General geology faculty. At least two members of the committee must be a Cal. State L.A. faculty members.

2. Comprehensive Exam track. Candidates on this track must pass a hand-written, 12-hour examination in order to receive their MS degree. The exam should be scheduled by the student with the committee during the final semester of the Masters Program. Students must contact the committee at the beginning of the semester of graduation to schedule the examination. The exam takes place in three consecutive days with each day of 4-hour examination. This exam will be scheduled during either Week 11 or Week 12 of the semester. This track does require the student to convene a committee and is recommended for students planning to pursue entry-level jobs in industry.

- **Comprehensive Exam plus Research:** This track allows MS students to gain some research experience by taking one semester of GEOL 5980: Independent Study. In addition to taking the full 12-hour comprehensive examination students will work with their advisor to conduct a semester-long research project that involves limited time and a 20-30 page written report. The student, in consultation with their advisor, may also choose to convene a committee of three committee members specific for this research and present the results of their research at the end of the semester.

Make-up program. Students who wish to pursue an MS in Geological Sciences but who do not have a BS in Geology are required to enter under the Make-up Program and can choose any of the two tracks. Students are required to have completed and received passing grades in lower division coursework including chemistry (General Chemistry or equivalent), physics (General Physics or equivalent) and calculus (or equivalent) prior to being accepted to the program. They must also have taken and passed Physical Geology (GEOL 1500) and Historical Geology (GEOL 2520) before being admitted to the program. Once students are accepted to the program they are required to take up to 3 courses, or 14 quarter units (9 semester units), of undergraduate, upper division coursework from the list below as approved by the committee:

- GEOL 3010: Mineralogy and Petrology (3 units)
- GEOL 3600: Introduction to Geological Mapping (3 units)
- GEOL 4010: Igneous and Metamorphic Petrology (4 units)
- GEOL 4100: Structural Geology (3 units)
- GEOL 4020: Sedimentary Petrology (4 units)
- GEOL 4300: Stratigraphy and Sedimentology (4 units)

Comprehensive Exam Procedures

General. Students will select a committee of three members. The committee will decide the scope of the exam so that it is focused on the material that is appropriate for the student. The exam should be scheduled by the student with the department during the final semester of the Master's Program. Students must contact the advisor in the semester prior to the semester of graduation to schedule the examination. The exam will be 12 hours long and takes place over three days (4 hours per day) during Week 11 or Week 12 of the semester. Students may switch from the thesis option to the exam option or vice versa only once.

Content.

The committee members will provide guidelines for sections that they will be grading. Below are some general guidelines for the two options:

Geology Option: The Geology comprehensive exam is divided into a number of sections and candidates must complete either a minimum number of sections or a required number of questions within each section. Topics include igneous, metamorphic and sedimentary petrology, mass wasting, hydrology, glaciers, mineralogy, plate tectonics, geologic time, Earth's interior, earthquakes, historical geology, the solar system, and a practical section on rock and mineral identification.

Environmental Hydrogeology Option: There are three 4-hour sections with the first 4-hour section being general geology and the second 4-hour section focused on hydrogeology expertise. The final section depends on the expertise of the committee members. The general geology section has 10 questions and the student is expected to answer 7. Topics in the general geology section include mineralogy, igneous, metamorphic and sedimentary rocks, mass wasting, hydrogeology, plate tectonics, geologic time, Earth's interior, earthquakes, historical geology, the solar system, and a practical section on rock and mineral identification.

Grading. The result of pass or non-pass is determined by the committee. Students who fail a particular section will be required to re-attempt that section. Students will have two opportunities to pass the exam. If the student does not pass after two attempts he/she will not receive the Master's Degree.