Master of Science Degree in Geology at Cal Poly Pomona

We invite applications for admission to Winter or Spring quarters of 2018, or Fall semester of 2018. The application deadlines are November 2, 2017, February 12, 2018, and June 1, 2018, respectively. Early application is encouraged for priority consideration.

How to Apply

- Apply online through [www.CalState.edu/Apply](http://www.CalState.edu/Apply) You may indicate in the appropriate boxes that the statement of interest and letters of reference are being mailed directly to the Geology Graduate Coordinator

- **For prompt feedback, also send** hard copies (or electronic files) of your application and supporting materials to:
  Jonathan Nourse, Graduate Coordinator; [janourse@cpp.edu](mailto:janourse@cpp.edu)
  Department of Geological Sciences
  3801 W. Temple Avenue
  California State Polytechnic University
  Pomona, CA 91768

The Program

Our Master’s program in Geology is designed to prepare graduates for employment in all fields of Geological Science, placement into prestigious PhD programs, and teaching at secondary and community college levels. Emphasis is placed on applied skills demanded by potential employers and academic institutions. Fundamental to the program is a thorough understanding of basic geologic principles rooted in field and laboratory experiences. The geologic framework provided by the MS degree will enable graduates to meet the intellectual challenges of their professional or academic careers and assume leadership roles in their profession. The program is sufficiently flexible to meet student interests in the application of geology to the solution of hydrologic, geophysical, environmental, geo-engineering, or resource extraction problems facing our society. As a polytechnic university we are dedicated to the “Learn by Doing” philosophy and stress practical interactions between students, faculty and industry/government professionals.
The Geology Department is a member of IRIS (Incorporated Research Institutions for Seismology http://www.iris.edu/hq/), and is involved in the California State University Water Resources and Policy Initiative http://www.calstate.edu/water/. Faculty research endeavors are supported by grants from such agencies as National Science Foundation, USGS National Earthquake Hazards Reduction Program, Southern California Earthquake Center, Department of Education, and JPL/Caltech. The Department maintains a robust alumni network, including many individuals who work in local geosciences industries and government agencies.

**Admissions Requirements**

- Unconditional admission into the Geology Master’s program is contingent upon the following:
  
  (1) A Bachelor’s degree in Geology or a closely related discipline (e.g., Geotechnical Engineering, Hydrology, Geophysics, Earth Science, Environmental Science) from an accredited institution, with a minimum grade-point average of 3.0 in Earth science courses, and a 2.5 grade-point-average in related science and mathematics courses;
  
  (2) Satisfactory performance on the Graduate Record Examination Aptitude Test with an expected score in the 50th percentile or better on the verbal and quantitative components;
  
  (3) Two letters of recommendation;
  
  (4) A one-page personal statement of interest, including research and career aspirations;
  
  (5) A minimum of 36 quarter units of undergraduate Earth science coursework is required to receive unconditional acceptance into the Master’s program.
  
  (6) Availability of faculty and resources in the student’s stated area of interest.

- **Conditional Admission**—every applicant will be carefully considered

A limited number of applicants not meeting the above requirements may be conditionally admitted following review of the student’s academic background by the departmental Graduate Program Committee. Such students must meet deficiency requirements stipulated in the statement of conditional admission within the time limit specified. Each selected applicant, with an advisory committee, will design a program in the selected area of specialization based upon interests and preparation. The program will include required courses, elective units and a thesis.
Degree Requirements—Note: we are transitioning to a semester system beginning August 2018. Please click here for Semester unit requirements: Geology MS Semester Curriculum Beginning August 2018 (PDF)

The Master’s degree program must include a minimum of 45 quarter units; at least 30 units must be in 500-600 level courses (see curriculum outlined below).

• No more than 13 units of graduate credit may be transferred from another institution or petitioned by a Cal Poly Pomona undergraduate student.

• A grade point average of 3.0 (B) or better must be maintained in all upper division undergraduate and graduate classes.

• The Graduation Writing Test (GWT) must be passed prior to Advancement to Candidacy.

• Advancement to Candidacy is required.

• An acceptable thesis must be completed and submitted in accordance with university regulations.

• An oral thesis defense must be successfully completed.

The Curriculum (Click here for Semester unit requirements: Geology MS Semester Curriculum Beginning August 2018 (PDF)

To earn a Master’s degree in Geology, students must complete 45 quarter units as specified below. Click below for: 
Graduate Course Descriptions and Learning Outcomes (PDF)
Graduate Course Offerings (2012-2019) (PDF)

• Required Graduate Courses (14 units):
  GSC 501 Advanced Topics in Geosciences (3)
  GSC 503L Field Investigations (2)
  GSC 600 Thesis Proposal (1)
  GSC 694 Thesis Research (5)
  GSC 696 Masters Degree Thesis (3)

• Technical Elective Courses (31 units; at least 16 units must be 500 level):
  GSC 410 Earth Science Seminar (2)
  GSC 401 GIS Applications for Earth and Environmental Scientists I (1/2)
  GSC 411 GIS Applications for Earth and Environmental Scientists II (1/2)
  GSC 415/L Engineering Geology II (3/1)
GSC 423/L Sedimentary Geology (3/2)
GSC 424 Igneous and Metamorphic Petrology (3)
GSC 425L Igneous and Metamorphic Petrology Lab (2)
GSC 432/L Soil Physics (3/1)
GSC 433/L Ore Deposits (3/1)
GSC 434/L Shallow Subsurface Geophysics (3/1)
GSC 440/L Exploration and Mining Geology (3/1)
GSC 444/L Geotectonics (3/1)
GSC 450/L Introduction to Seismology, Earthquakes and Earth Structure (3/1)
GSC 491L Field Module (2)
GSC 495 Planetary Geology (4)
GSC 534/L Quaternary Geology (3/1)
GSC 541/L Micropaleontology (3/1)
GSC 545/L Advanced Hydrogeology (3/1)
GSC 551/L Petroleum Geology (3/1)
GSC 564/L Advanced Shallow Subsurface Geophysics(3/1)
GSC 568/L Topics in Advanced Seismology (3/1)
GSC 575/L Contaminant Transport
GSC 599/L/A Special Topics for Graduate Students (1-4); examples include
Isotope Geochemistry; Volcanology; Advanced Structural Geology/Tectonics;
Advanced Topics in Sedimentology/Stratigraphy

**Advancement To Candidacy**

Advancement to Candidacy is contingent upon the recommendation of the Graduate Coordinator and the student's advisory committee. A student who has not been admitted to candidacy is not eligible to register for the thesis (GSC 696). In order to qualify for advancement to Candidacy for the Master of Science in Geology, a student must: (1) complete at least 24 units of graduate coursework at Cal Poly Pomona with a GPA of 3.0 or better and (2) pass the Graduation Writing Test.

**The Master’s Thesis**

Master’s candidates will work closely with faculty adviser to conduct independent research custom-tailored to the objectives outlined in their Thesis Proposal (GSC 600). A wide variety of research endeavors may be appropriate, ranging from classical research to scientific extensions of industry-related work efforts. An ideal thesis plan will be custom-tailored to the student’s professional interests and work or family constraints.

The Master’s Thesis (GSC 696) is a written document describing systematic study of a significant problem. It identifies the problem, states the major assumptions, explains
the significance of the undertaking, sets forth the sources for and methods of gathering information, analyzes the data, and offers a conclusion or recommendation. The finished product evidences originality, critical and independent thinking, appropriate organization and format, and thorough documentation. An oral defense of the thesis is required.

**Our Target Audience**
A Master’s degree in Geology greatly enhances the job opportunities and career advancement for Earth scientists with BS degrees. We target both working professionals and traditional graduate students (i.e., those finishing BS degrees and perhaps seeking a stepping stone to a PhD program). Both cohorts would benefit equally from our thesis-based Master’s program with an affordable fee structure. Course scheduling will accommodate both groups; e.g., afternoon and evening classes with most laboratories and field trips offered on weekends.

**Our Faculty**
- **Jonathan Nourse**, Professor and Chair  
  PhD, Caltech, 1989  
  Specialties: Structural Geology, Tectonics, Mineral Exploration, Engineering Geology, GIS Applications, Hydrogeology  
  Home Page: [http://geology.cpp.edu/janourse/default.htm](http://geology.cpp.edu/janourse/default.htm)

- **Jeffrey Marshall**, Professor  
  PhD, Penn State University, 2000  
  Specialties: Geomorphology, Neotectonics, Geologic Hazards, Watershed Restoration, Coastal Geology  
  Home Page: [http://www.cpp.edu/~marshall/index.htm](http://www.cpp.edu/~marshall/index.htm)

- **Jascha Polet**, Professor  
  PhD, Caltech, 1999  
  Specialties: Seismology, Geophysics, Hazards Assessment, Tsunami  

- **Stephen Osborn**, Associate Professor  
  PhD, University of Arizona, 2010  
  Specialties: Hydrogeology, Aqueous Geochemistry, Groundwater Remediation, Energy and Environment  
  Home Page: (under development)
• Nicholas Van Buer, Assistant Professor
PhD, Stanford University, 2012
Specialties: Igneous and Metamorphic Petrology, Geochronology, GIS Applications, Tectonics, Field Geology
Home Page: http://www.cpp.edu/~njvanbuer

• Bryan Murray, Assistant Professor
PhD, UC Santa Barbara, 2013
Specialties: Sedimentary Geology, Volcanology, Extensional Basin Analysis, Earth History; Field Geology
Home Page: http://geologistbryan.weebly.com/

Our Location
Our location in a unique geologic and urban environment provides a dramatic natural laboratory in which to conduct geological research. Frequent occurrence of earthquakes, landslides, storms, floods, wildfires, and human-induced environmental mishaps in the densely populated region surrounding Cal Poly Pomona presents significant challenges that require rapid response and evaluation. All Geological Sciences faculty play an important role in community issues like natural hazards mitigation, site investigation, resource management, and public outreach or education. Most of our graduates are placed locally as scientists in geotechnical firms or as teachers in primary or secondary schools. Hence, the Geological Sciences Department and its programs have great value and relevance to the University and the community.