GEological Sciences

This major includes a spectrum of disciplines focused on understanding the processes that influence the tectonics and environment of the planet, on using this understanding to read the record of earth history written in rocks and sediments, and on developing models that can be used to predict future changes due to natural phenomena and recent perturbations caused by humans.

Opportunities for Students

- **Southern California Earthquake Center:** Geology majors in their sophomore, junior, or senior year are eligible to intern with the SCEC headquarters at USC.

- **Earth Science Team Research:** This eight-unit, multidisciplinary student research experience that takes place largely outside of the classroom. Students work closely with faculty to collect data in the field, interpret their findings, and present at symposia held in the spring semester.

- **Maymster:** Field-based research is an essential part of Geological Sciences, and you will have the opportunity to participate in this unique spring program where you will travel and complete field work in the southern Andes, Argentina during the month of May.

- **Sigma Gamma Epsilon:** The Omega Chapter of the national honorary earth sciences fraternity is housed at USC. Any students interested in the Geological Sciences are welcome to join this student organization.

Notable Courses

- **GEOL 108: Crises of a Planet** — Impact of civilization on planet earth, and impact of earth’s natural evolution on society: earthquakes, volcanism, landslides, floods, global warming, acid rain, groundwater depletion, and formation of the ozone hole.

- **GEOL 150: Climate Change** — Climate systems from the beginning of earth history to the present; tools and techniques used to reconstruct prehistoric climate records; effects of climate variations on development of life forms on earth.

- **GEOL 240: Earthquakes** — Causes of earthquakes and nature of large faults; earthquake hazard and risk; world’s great earthquakes; understanding the Richter scale.

- **GEOL 433: Paleontology and Evolution in Deep Time** — Origin and evolution of life; Precambrian life; mass extinctions; deep time and evolutionary processes.
# Bachelor of Science (BS) Requirements

## Introductory Course Requirement (select one)**
- GEOL 105: Planet Earth
- GEOL 107: Oceanography
- GEOL 108: Crises of a Planet
- GEOL 125: Earth History: A Planet and its Evolution
- GEOL 130: The Nature of Scientific Inquiry
- GEOL 150: Climate Change
- GEOL 240: Earthquakes

## Math and Chemistry Requirements*
- CHEM 105: General Chemistry A & B
  or CHEM 115: Advanced General Chemistry A & B
- MATH 125: Calculus I
- MATH 126: Calculus II

## Biology or Physics Requirements (select one)*
- PHYS 135: Physics for the Life Sciences A & B
- PHYS 151: Fundamentals of Physics I — Mechanics and Thermodynamics
  & PHYS 152: Fundamentals of Physics II — Electricity and Magnetism
- BISC 120: General Biology — Organismal Biology and Evolution
  & BISC 220: General Biology — Cell Biology and Physiology

## Upper Division Requirements*
- GEOL 315: Minerals and Earth Systems
- GEOL 387a: Undergraduate Team Research
- GEOL 494: Senior Thesis
- GEOL 465: Field Geology
  or GEOL 490: Directed Research

## Elective Requirements (select seven)**
- BISC 474: Ecosystem Function and Earth Systems
- BISC 483: Geobiology and Astrobiology
- GEOL 316: Petrologic Systems
- GEOL 321: Structural Geology and Tectonics
- GEOL 412: Oceans, Climate, and the Environment
- GEOL 460: Geochemistry and Hydrogeology
- GEOL 470: Environmental Hydrogeology

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**This information is offered as a partial overview only. For additional information, including all major requirements, please consult the USC Catalogue or [http://dornsife.usc.edu/earth/undergraduate-degrees/](http://dornsife.usc.edu/earth/undergraduate-degrees/). Updated as of August 2015.

**This does not represent all options in this category. For a complete list, please consult the USC Catalogue.