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

- **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.

- **Study Abroad:** Spend a semester or a year earning credit at New Zealand’s University of Otago, known for its strong natural and environmental science programs.

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

- **Earth Science Research Apprenticeship:** Students have the opportunity to apply for and receive funding to conduct their own research projects with the guidance of a faculty member.

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 pollution; mineral and fossil fuel depletion, formation of the ozone hole.

- **GEOL 320: Surficial Processes and Stratigraphic Systems** — Processes of erosion, sediment transport, and deposition that shape the land surface; landscape response to tectonism; recognition and interpretation of depositional environments in the stratigraphic record.

- **GEOL 440: Geophysics and Geoengineering** — Plate tectonics, magnetic and gravity fields, earthquakes, seismic waves, reflection and refraction seismics, heat transport, mantle convection, deep Earth structure, data analysis.

- **GEOL 450: Geosystems** — Geosystems, such as mantle convection, active faults, climate, and the carbon cycle, will be studied using numerical models and concepts such as chaos, universality, emergence, and intermittency.
# Bachelor of Arts (BA) 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

**Required Courses**
- GEOL 315: Minerals and Earth Systems
- CHEM 105: General Chemistry A
- MATH 118: Fundamental Principles of Calculus
  or MATH 125: Calculus I

**Elective Course 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 425: Data Analysis in the Earth and Environmental Sciences
- GEOL 433: Paleontology and Evolution in Deep Time
- GEOL 460: Geochemistry
- GEOL 470: Environmental Hydrogeology

**Additional Requirement (select one)**
- BISC 120: General Biology — Organismal Biology and Evolution
- CHEM 105: General Chemistry B
- PHYS 135: Physics for the Life Sciences A

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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.*