GEOLOGY/GEOGRAPHY

Geology is the science that studies the structure, mechanics, interactions and evolution of the outer crust of the Earth. Students completing a degree in this discipline will have an introductory foundation for the field of Geology through the study of the scientific method, Earth materials, Earth processes, and Earth history. They will acquire skills, knowledge, and abilities that enable students to use a scientific approach incorporating basic chemistry and mathematics to the study of the Earth; identify common minerals, rocks, and geomorphic features of Earth; describe the materials and elucidate the processes that comprise the dynamic Earth system; describe the evidence for and occurrence of major events in Earth History.

Geography, Earth Science, and Meteorology courses are housed in the Geology department. Although no degrees are currently being offered in these subjects, these courses can be used to complete General Education or transfer requirements.

- Meteorology is the science that studies the atmosphere, its structure, interactions and anthropogenic modification.
- Earth Science studies the structure, mechanics, interactions and evolution of the earth's crust, atmosphere and oceans.
- Geography is the natural and social science that studies the distribution and relationships between physical, geological, political and cultural entities

The most common career opportunities with a baccalaureate degree include entry-level field technician/geologist, industrial employment (mining, oil, environmental consulting), and governmental agencies (Department of Natural Resources, Geological Surveys, and National Parks).

Transfer requirements in Geology are available in the Counseling Department. In all cases, students should consult with a counselor for specific transfer requirements.

Contact Information

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Associate Degree

- Associate in Science in Geology for Transfer (AS-T) (https://catalog.cos.edu/areas-study/geology/associate-science-geology-transfer-as-t/)

For a complete list of courses and descriptions visit: COURSES (https://catalog.cos.edu/course-descriptions/)

ESCI 001 Introduction to Earth Science **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
3 Lab

This course provides students with the scientific background to teach earth science at kindergarten through 8th grade levels. It emphasizes the application of the scientific method to the study of Earth systems. Topics include: geology (minerals, rocks, earthquakes, volcanoes, rivers, glaciers, the fossil record), oceanography (ocean composition, currents, tides, coastlines), meteorology (atmospheric composition, weather, storms), and astronomy (phases of the moon, eclipses, the solar system).

ESCI 055 Introduction to Geographic Information Systems **3unit(s)**
Hours: 2 Lecture/Discussion Hours:
3 Lab

This course provides an introduction to the fundamentals of Geographic Information Systems (GIS), including the history of automated mapping. The course includes a brief introduction to basic cartographic principles, including map scales, coordinate systems and map projections. GIS hardware and software are explored, as are various applications of GIS technology used in environmental science, business and government.

GEOG 001 Physical Geography **3unit(s)**
Hours: 3 Lecture/Discussion
An investigation of weather, climate, landforms, and maps. An emphasis is placed on using the methodologies of scientific inquiry to explain the distribution of physical phenomena on the surface of the earth and on examining the relationship between man and the natural environment.
Advisory on Recommended Preparation: ENGL 261 or equivalent college course with a minimum grade of C or eligibility for ENGL 001 as determined by COS Placement Procedures (https://catalog.cos.edu/placement-procedures/). (C-ID GEOG110)

GEOG 001L Physical Geography Lab **1unit(s)**
Hours: 3 Lab
Observations, computer projects, experiments, and a field trip are designed to familiarize students with techniques used in physical geography.
Corequisites: GEOG 001 must be taken concurrently. (C-ID GEOG111)

GEOG 002 World Regional Geography **3unit(s)**
Hours: 3 Lecture/Discussion
Aspects of physical and cultural geography such as landforms, climate, vegetation, natural resources, demography, cultural diversity, and political and economic organization are applied to various world regions. An emphasis is placed on examining man-land relationships, multicultural issues, and understanding world problems from a geographic perspective. (C-ID GEOG125)

GEOG 005 Introduction to Weather and Climate **3unit(s)**
Hours: 3 Lecture/Discussion
Equivalent Course: MET 001
An introductory course designed to provide insights into physical processes and laws that underlie the phenomena of weather and climate including seasonal changes, temperature, precipitation, weather forecasting, climate, and climate change. An emphasis is placed on understanding the methodologies of scientific inquiry and understanding current meteorological-environmental problems. (C-ID: GEOG130)

GEOL 001 Physical Geology **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
3 Lab

An introductory exploration of the structure, composition and dynamic processes that comprise the Earth system, with emphasis on plate tectonics and its consequences and the external processes that sculpt Earth's surface. Laboratory exercises include the identification of mineral and rock specimens and the examination of topographic and geologic maps. (C-ID GEOL101)

GEOL 005 Earth History **4unit(s)**
Hours: 3 Lecture/Discussion Hours:
3 Lab

This course examines the geologic evidence for the major events in Earth's history, including: the formation of the crust, atmosphere, and oceans; the tectonic history of the continents; and mass extinctions and the record of life on Earth. Course topics are reinforced by the analysis of rock specimens, fossils, and geologic maps during laboratory sessions. (C-ID GEOL111)

GEOL 012 Environmental Geology **3unit(s)**
Hours: 3 Lecture/Discussion
Geologic hazards, natural resources, and pollution constitute the core themes of this study of man’s interactions with earth systems. The consequences of human modification of natural systems and the geological underpinnings of modern society are emphasized. Topics include flooding, earthquakes, volcanic eruptions, plate tectonics, energy resources, water resources, mineral resources, climate change, the greenhouse effect, waste disposal, water pollution, and the carbon, nitrogen, and water cycles. Scientific and sociopolitical approaches to environmental issues are explored. (C-ID GEOL 130)

GEOL 151 Geology of the Mojave Desert **1unit(s)**
Hours: 1 Lecture/Discussion Hours:
0.5 Lab

This field trip course introduces the geology and natural resources of the Mojave Desert. Major themes include tectonics and structure, mineral resources and mining, and energy resources. Some geologic features will be discussed en route, while extended stops, that include some hiking, allow closer examination of phenomena such as faults, volcanoes, mines, and solar power plants.

GEOL 152 Geology of the Central Coast **1unit(s)**
Hours: 1 Lecture/Discussion Hours:
0.5 Lab

This field trip course introduces the geology of the Central Coast. Major themes include tectonics, geologic hazards, energy and water resources, pollution, and coastline and surficial processes. Some features will be discussed en route. Extended stops that include some hiking allow closer examination of phenomena (e.g., the San Andreas Fault and Morro Rock).

GEOL 153 Granite, Glaciers, and Gold **1unit(s)**
Hours: 1 Lecture/Discussion Hours:
0.5 Lab

This field trip course explores the geology of the central Sierra Nevada. Primary topics include: the formation and evolution of Yosemite Valley, the Mother Lode gold deposits, and the central Sierra foothills (the Western Metamorphic Belt).

GEOL 154 Volcanoes of Northern California **2unit(s)**
Hours: 1.5 Lecture/Discussion Hours:
1.5 Lab

This extended field trip explores northern California's sleeping volcanoes: Mt Shasta, Medicine Lake Volcano and Mt Lassen. Volcanic features, landforms, processes, and hazards constitute the major themes of this class.

Geology/Geography

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