

# Geology

Degree: A.S. Math/Physical Science  
A.S. - General Science

Area: Science and Engineering  
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Geology is the study of the origin and evolution of the earth, using the principles of mathematics, chemistry, physics, and biology. Geologists study rocks, minerals, and fossils in an effort to draw conclusions about the Earth's observable surface processes, as well as those processes taking place inside the Earth.

## General Science

### Requirements for Degree Major

18 units of transfer level course work in science in addition to other graduation requirements

Two laboratory courses must be included, one in a physical science and one in a biological. Courses may be selected from anatomy, astronomy, bacteriology, biology, botany, chemistry, geology, physical anthropology, physical geography, physical science, physiology, physics and zoology. See ARC graduation requirements.

## Mathematics - Physical Science

### Requirements for Degree Major

18 units of transfer level course work in addition to other graduation requirements Courses may be selected from astronomy, chemistry, engineering, geology, mathematics, physical geography, physical science, physics and statistics. See graduation requirements.

## GEOL 300 Physical Geology 3 Units

Formerly: GEOL 1

Prerequisite: None

Advisory: MATH 100, ENGRD 116, ENGWR 51, or ESLW 310; or placement through the assessment process.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This in-depth course provides an understanding of the dynamic nature of the earth through the study of earth processes including plate tectonics, plate boundary events and features of the ocean basins, earthquakes and the earth's interior, mineral and rock systems, ground water, development and destruction of landforms, glaciers, deserts and examples of environmental geology. One field trip experience is required. May be taken separately from the physical geology laboratory. (CAN GEOL 2-GEOL 300+301) (CAN GEOL 6) AA/AS area A; CSU area B1; IGETC area 5A.

## GEOL 301 Physical Geology Laboratory 1 Unit

Formerly: GEOL 2

Prerequisite: None

Corequisite: GEOL 300.

Course Transferable to UC/CSU

Hours: 54 hours LAB

This course is the study of common rocks and minerals, topographic maps, geological maps and air photographs and first-hand field observations of the local geology. (CAN GEOL 2-GEOL 300+GEOL 301) AA area A; CSU area B1; IGETC area 5A

## GEOL 305 Earth Science 3 Units

Formerly: GEOL 8

Prerequisite: None

Advisory: MATH 32 and ENGRD 116, ENGWR 51 or ESLW 310; or placement through assessment.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This is an introductory science course covering major topics in geology, oceanography, meteorology, astronomy, scientific method and philosophy of science. Course is not designed for science and/or geology majors. This course may not be taken with GEOL 301. AA area 3A; CSU area B1, IGETC area 5.

## GEOL 306 Earth Science Laboratory 1 Unit

Formerly: GEOL 8L

Prerequisite: None

Corequisite: GEOL 305.

Advisory: ENGWR 102 or ENGWR 103, ENGRD 116, or ESLR 320 or ESLW 320; or placement through assessment.

Course Transferable to UC/CSU

Hours: 54 hours LAB

This course emphasizes scientific methods and systematic laboratory procedures. Includes weather analysis, rock and mineral identification, study of geologic concepts by means of topographic maps, and exercises in astronomy and oceanography. One field trip is required. Not available for credit to students who have completed GEOL 300 or 301. CSU area B1; IGETC area 5A

## GEOL 310 Historical Geology 3 Units

Formerly: GEOL 3

Prerequisite: None

Advisory: GEOL 300.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course covers geologic history of earth as shown by the changing pattern of land and sea and by the succession of fauna and flora. Stratigraphic and other techniques for interpreting the sequence of past geological events are studied. (CAN GEOL 4) AA/AS area A; CSU area B1.

### **GEOL 311 Historical Geology Laboratory 1 Unit**

Formerly: GEOL 3L

Prerequisite: None

Corequisite: GEOL 310.

Course Transferable to CSU

Hours: 54 hours LAB

This course is a laboratory study in historical geology. Principles of physical geology and paleontology are applied in the reconstruction of the history of the earth. Exercises in stratigraphy, paleontology and interpretation of geologic maps will be utilized.

### **GEOL 325 Environmental Hazards and Natural Disasters 3 Units**

Formerly: GEOL 13

Prerequisite: None

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course covers the environmental effects and applications of Earth-related processes. It focuses on earthquakes, volcanic eruptions, landslides, and flooding; availability and exploitation of natural resources, waste disposal and global climate change. Humans as a force in environmental change will be emphasized. The course is designed to address interests in geology, engineering, environmental studies, geography, and science education. One field trip is required. Not open to students who have completed GEOG 307. AA/AS area A, CSU area B1.

### **GEOL 330 Introduction to Oceanography (same as Geography 308) 3 Units**

Formerly: GEOL 5

Prerequisite: None

Advisory: GEOL 300 or GEOG 300.

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course is an integrated study of water on earth emphasizing physical oceanography, ocean and shoreline processes, plate tectonics, sea floor morphology, ocean chemistry, marine resources, and environmental concerns. Students will gain familiarity with regional physical shoreline features and processes through a field trip, completion of a paper, and class discussions. Not open to students who have completed GEOG 308. AA/AS area A

### **GEOL 331 Introduction to Oceanography Lab 1 Unit**

Formerly: GEOL 5L

Prerequisite: None

Corequisite: GEOL 330 or GEOG 308.

Advisory: GEOL 300 or GEOG 300.

Course Transferable to UC/CSU

Hours: 54 hours LAB

This course is a laboratory investigation of water on earth, emphasizing the shape of the sea floor, marine navigation, plate tectonics, sea floor materials and their utilization, the physical and chemical nature of sea water, currents, tides, and marine weather. Not open to students who have completed GEOG 309.

### **GEOL 342 Geology of the National Parks 3 Units**

Formerly: GEOL 18

Prerequisite: None

Advisory: GEOL 300 and 301.

Course Transferable to CSU

Hours: 54 hours LEC

This course is designed to introduce Earth's geologic story as revealed by the rocks and landscapes in our National Parks. Attention will focus on how natural earth processes have formed our National Parks and National Monuments. Surface shaping processes such as volcanism, plutonism, deformation, sedimentation, glaciation, and fluvial activity will be studied as displayed in our western parks and monuments. One field trip is required. AA/AS area A, CSU area B1.

### **GEOL 345 Geology of California 3 Units**

Formerly: GEOL 12

Prerequisite: None

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course provides a survey of the physical and historical aspects of California geology, emphasizing the linkage of geology and people through economic and social impacts. This course is recommended for non-majors and majors in geology and is of particular value to science, engineering, environmental studies, education, and economics majors. One field trip is required. AA/AS area A; CSU area B1.

### **GEOL 350 Introduction to Mineralogy 4 Units**

Formerly: GEOL 6

Prerequisite: GEOL 300.

Course Transferable to UC/CSU

Hours: 36 hours LEC; 108 hours LAB

This course is an introduction to crystal structure and determination of minerals by crystal form, hardness and cleavage. Techniques of spectroscopic and wet chemical analysis, stereogram methods and beginning optical mineralogy.

### **GEOL 390 Field Studies in Geology .5-4 Units**

Formerly: GEOL 24

Prerequisite: None

Course Transferable to CSU

Hours: 3-24 hours LEC; 18-144 hours LAB

This course involves field trips to selected locations of geologic interest. Course content will vary according to field trip destination but may include topics in physical geology, environmental geology, economic geology, and/or introduction to tools and techniques used for geosciences field research (e.g. map and compass, the Global Positioning System (GPS), Geographic Information Systems (GIS), etc.). Field trip(s) are required. May be taken 4 times for a maximum of 6 units.