

2024-2025 Unofficial Catalog Preview

Geology

Overview

Geology is an interdisciplinary science that seeks to study and understand the physical processes of Earth and other planets, including plate tectonics, rocks, minerals, earthquakes, volcanoes, the fossil record and Earth's history and past climate, and natural geological resources. The Associate in Science in Geology for Transfer provides students with a major that fulfills the general requirements of the California State University for transfer. Students with this degree will transfer with junior standing to the California State University system.

Degrees Offered

A.S.-T. in Geology

Dean

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Associate Degree for Transfer

A.S.-T. in Geology

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The Associate Degree for Transfer (ADT) student completion requirements (as stated in SB1440 law):

(1) Completion of a minimum of 60 semester units or 90 quarter units that are eligible for transfer to the California State University, including both of the following:

(A) The Intersegmental GE Transfer Curriculum (IGETC) or the California State University GE-Breadth Requirements (CSU GE-Breadth).

(B) A minimum of 18 semester units or 27 quarter units in a major or area of emphasis, as determined by the community college district.

(2) Obtainment of a minimum grade point average of 2.0.

ADTs also require that students must earn a "C" or better in all courses required for the major or area of emphasis. A "P" (Pass) grade is also an acceptable grade for courses in the major if the course is taken on a Pass/No Pass basis.

Catalog Date: August 1, 2024

Degree Requirements

COURSE CODE	COURSE TITLE	UNITS
GEOL 300	Physical Geology	3

COURSE CODE	COURSE TITLE	UNITS
GEOL 301	Physical Geology Laboratory	1
GEOL 310	Historical Geology	3
GEOL 311	Historical Geology Laboratory	1
CHEM 400	General Chemistry I	5
CHEM 401	General Chemistry II	5
MATH 400	Calculus I	5
MATH 401	Calculus II	5
Total Units:		28

The Associate in Science in Geology for Transfer (AS-T) degree may be obtained by completion of 60 transferable, semester units with a minimum overall grade point average (GPA) of 2.0, including (a) a minimum grade of "C" (or "P") for each course in the major or area of emphasis described in the Required Program, and (b) either the Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements.

Student Learning Outcomes

Upon completion of this program, the student will be able to:

- evaluate ideas about the natural universe using testable methodology, differentiate between scientific and non-scientific information, and demonstrate understanding of the scientific method by designing a valid scientific inquiry.
- examine and enumerate orally and/or in writing the importance of continuous examination and modification of accepted ideas as a fundamental element in the progress of science.
- analyze a wide variety of natural phenomena using basic definitions and fundamental theories of natural science.
- apply knowledge of current geologic processes to the understanding of Earth's past geologic history.
- synthesize diverse geological terminology and concepts and be able to explain them to a diverse audience.
- evaluate and analyze contemporary geologic problems including the implications of human activities on geologic resources.
- integrate information about the rate and scale of simple geologic processes and be able to convert between them.

Career Information

The Geology transfer degree is designed to facilitate students' successful transfer to four-year colleges that ultimately prepare them for advanced study in a variety of graduate programs as well as a variety of career opportunities in the fields of environmental monitoring, protection and remediation, energy and mineral exploration, paleontology, vulcanology, seismology, climatology, teaching, and research.

Geology (GEOL) Courses

GEOL 300 Physical Geology

Units:	3
Hours:	54 hours LEC
Prerequisite:	None.
Advisory:	ENGRD 310 and ENGWR 300 with grades of "C" or better. Concurrent enrollment in GEOL 301 is recommended.
Transferable:	UC
General Education:	AA/AS Area IV; CSU Area B1; IGETC Area 5A
C-ID:	C-ID GEOL 100
Catalog Date:	August 1, 2024

This course provides an understanding of the dynamic nature of the planet through the study of Earth processes, with a focus on real-world examples of the scientific method and the relevance of geology to our everyday lives. Topics include global plate tectonics and related processes such as earthquakes and volcanic activity. Other topics include mineral and rock formation, surface water and groundwater, glaciers, coastal environments, natural resources, and global climate change. Successful completion of physical geology prepares the student to recognize, understand, and appreciate the physical processes that continually change Earth over geologic time.

GEOL 301 Physical Geology Laboratory

Units:	1
Hours:	54 hours LAB
Prerequisite:	None.
Corequisite:	GEOL 300 (Physical Geology) or successful completion of GEOL 300 with a grade "C" or better.
Advisory:	ENGRD 310, ENGWR 300, or ESLW 340 with a grade of "C" or better; Elementary Algebra or equivalent (Integrated Math 1) with a grade of "C-" or better. Students needing a review of mathematical concepts covered in this course should enroll in MATHS 10.
Transferable:	UC
General Education:	AA/AS Area IV; CSU Area B3; IGETC Area 5C
C-ID:	C-ID GEOL 100L
Catalog Date:	August 1, 2024

This course is a laboratory study of the basic principles of geology discussed in Physical Geology (GEOL 300), and their applications to everyday life. It encompasses the study and identification of common rocks and minerals; plate tectonic rates and processes; the interpretation and recognition of geologic structures and landforms; interpretation of maps, aerial photographs, and remote sensing images; seismic

information; river processes; and analysis of geologic hazards including climate change. One field trip is required.

GEOL 305 Earth Science

Units:	3
Hours:	54 hours LEC
Prerequisite:	None.
Advisory:	ENGWR 300 or ESLW 340 with a grade of "C" or better; Elementary Algebra or equivalent (Integrated Math 1) with a grade of "C-" or better. Students needing a review of mathematical concepts covered in this course should enroll in MATHS 10.
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B1; IGETC Area 5A
C-ID:	C-ID GEOL 120
Catalog Date:	August 1, 2024

Earth science is an introductory science course that covers a broad range of topics including geology, oceanography, meteorology, and astronomy. Sub-topics are introduced and placed into the context of the scientific method. Using recent, historical, and prehistorical earth science events as examples, the course emphasizes the interrelatedness of the various disciplines and focuses on Earth as a dynamic, synthetic, and continually evolving - yet stable - planet.

GEOL 306 Earth Science Laboratory

Units:	1
Hours:	54 hours LAB
Prerequisite:	None.
Corequisite:	GEOL 305
Advisory:	ENGWR 300 or ESLW 340 with a grade of "C" or better; Elementary Algebra or equivalent (Integrated Math 1) with a grade of "C-" or better. Students needing a review of mathematical concepts covered in this course should enroll in MATHS 10.
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B3; IGETC Area 5A
C-ID:	C-ID GEOL 120L
Catalog Date:	August 1, 2024

This course emphasizes scientific methods and systematic laboratory procedures in the earth sciences. It includes practical and written experience in rock and mineral identification, plate tectonics and earthquakes, river and glacial topography, geologic and topographic maps, oceanography and meteorology exercises, and concepts in astronomy. At least one field trip (for example to Cache Creek Canyon or Point Reyes National Seashore) or an appropriate alternative activity will be required as an introduction to geological environments and field methods in geology. The course is not available for credit to students who have completed GEOL 302.

GEOL 308 Introduction to Geology

Units:	3
Hours:	54 hours LEC
Prerequisite:	None.
Advisory:	ENGWR 300 or ESLW 340 with a grade of "C" or better; and Pre-algebra with a grade of "C-" or better. Students needing a review of mathematical concepts covered in this course should enroll in MATHS 10.
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B1; IGETC Area 5A
Catalog Date:	August 1, 2024

This course provides an introduction to geological processes and the dynamic nature of Earth as a system. It includes discussion of fundamental geological concepts such as plate tectonics, the major rock types and the minerals that comprise them, volcanoes, earthquakes and Earth's interior, crustal deformation and mountain building, deep time, fossils and evolution, and the history of Earth. A focus on the relevance of geology to our everyday lives makes this course ideal for introductory-level and non-science majors and those students desiring a stronger background in the basic sciences.

GEOL 310 Historical Geology

Units:	3
Hours:	54 hours LEC
Prerequisite:	None.
Advisory:	ENGWR 300 or ESLW 340 with a grade of "C" or better; Concurrent enrollment in GEOL 311 is recommended.
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B1; IGETC Area 5A
C-ID:	C-ID GEOL 110
Catalog Date:	August 1, 2024

This course covers the origin and geologic history of the Earth and the evolution of its living organisms. Plate tectonic theory is used to explain changes in composition and structure of rocks of the Earth's crust from the formation of the Earth to the present. Emphasis is placed on the formation of sedimentary rocks and the fossils contained within them for the purpose of understanding how they record changes in Earth's environmental processes and ecosystems. Evolution and extinction are studied to understand how they reflect environmental changes in the Earth's ocean, atmosphere, and surface. One field trip experience may be required.

GEOL 311 Historical Geology Laboratory

Units:	1
Hours:	54 hours LAB

Prerequisite:	None.
Corequisite:	GEOL 310
Advisory:	ENGWR 300 or ESLW 340 with a grade of "C" or better; Elementary Algebra or equivalent (Integrated Math 1) with a grade of "C-" or better. Students needing a review of mathematical concepts covered in this course should enroll in MATHS 10.
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B3; IGETC Area 5A
C-ID:	C-ID GEOL 110L
Catalog Date:	August 1, 2024

Laboratory activities will accompany and complement GEOL 310, Historical Geology. Use of sedimentary rocks, fossils, geologic maps, and cross sections will aid in interpreting ancient environments, tectonic settings, and geologic history. Other concepts addressed include age relations and correlation of rock and time units, and introduction to fossil identification and biostratigraphy. At least one field trip (for example to Cache Creek Canyon or Point Reyes National Seashore) or an appropriate alternative activity will be required as an introduction to sedimentary environments and field methods in geology.

GEOL 325 Environmental Hazards and Natural Disasters

Units:	3
Hours:	54 hours LEC
Prerequisite:	None.
Advisory:	ENGWR 300 or ESLW 340 with a grade of "C" or better
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B1; IGETC Area 5A
C-ID:	C-ID GEOL 130
Catalog Date:	August 1, 2024

This course covers the Earth systems and environmental effects and applications of Earth-related processes. It focuses on earthquakes, volcanic eruptions, landslides, flooding, and hurricanes, as well as covering related current events. Topics also include the availability and exploitation of natural resources, waste disposal, and global climate change. Humans as a force in environmental change are emphasized. This course addresses geology, engineering, environmental studies, natural resources, geography, and science education. One field trip may be required.

GEOL 345 Geology of California

Units:	3
Hours:	54 hours LEC
Prerequisite:	None.
Advisory:	ENGRD 310 and ENGWR 300 with grades of "C" or better.
Transferable:	CSU; UC
General Education:	AA/AS Area IV; CSU Area B1; IGETC Area 5A
C-ID:	C-ID GEOL 200
Catalog Date:	August 1, 2024

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 may be required (for example to Cache Creek Canyon or Point Reyes National Seashore).

GEOL 391 Field Studies in Geology

Units:	1 - 3
Hours:	6 - 18 hours LEC; 36 - 108 hours LAB
Prerequisite:	GEOL 305, 308, or 310 with a grade of "C" or better
Enrollment Limitation:	For course topic "Geology and Natural History of the Eel River, Northern California," students must demonstrate swimming and basic canoeing abilities. Students must be able to swim 50 yards and demonstrate they can enter and exit a canoe from beach and dock; paddle forward, turn, stop and reverse; right a capsized canoe; and perform an assisted entry from the water. Swim testing and canoe testing will be administered by the CSU Sacramento Aquatic Center at Lake Natoma or the Humboldt State University Center Activities Program at Humboldt Bay.
Transferable:	CSU; UC
Catalog Date:	August 1, 2024

This course requires field trips to selected locations of geologic interest. Course content varies according to field trip destination but may include topics in physical geology, environmental geology, economic geology, natural history, 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.]. Units are awarded based on both lecture and laboratory (one unit per 18 hours lecture and/or 54 hours laboratory or a combination of lecture and laboratory hours).

GEOL 495 Independent Studies in Geology

Units:	1 - 3
Hours:	54 - 162 hours LAB
Prerequisite:	None.
Transferable:	CSU
Catalog Date:	August 1, 2024

An independent studies project involves an individual student or small group of students in study, research, or activities beyond the scope of regularly offered courses. UC transfer credit will be awarded only after the course has been evaluated by the enrolling UC campus. The units completed for this course cannot be counted towards the minimum 60 units required for admissions. UC transfer credit will be awarded only after the course has been evaluated by the enrolling UC campus. The units completed for this course cannot be counted towards the minimum 60 units required for admissions.

GEOL 499 Experimental Offering in Geology

Units:	0.5 - 4
Prerequisite:	None.
Transferable:	CSU
Catalog Date:	August 1, 2024

This is the experimental courses description.

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