

The Associate of Science in Geology Degree (AS) will be awarded upon completion of the major course requirements listed below and the General Education requirements for the Associate in Arts Degree listed in the Degrees, Programs & Transfer Requirements section of this Catalog.

An Associate of Science in Geology (AS) from College of Alameda is intended for students who are interested in earning a local 2-year degree in Geology. This AS degree gives students the opportunity to learn the principles and practices in the various fields of Geology and form a solid knowledge base that will serve as preparation for employment and/or future studies. Upon completion of this program, students will be well prepared for employment enhancement and advancement, as well as entry-level employment in Geology and related fields.

Career Opportunities

Energy resources technicians, laboratory research, professor, hydrologist, flood control specialist, volcanologist, environmental clean-up resource specialist, pollution control manager, seismologist, many other opportunities in geological resource exploration and management.

Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Demonstrate understanding of the scientific method as it relates to Earth Science
- Demonstrate analytical and critical thinking skills required to understand Geological processes in the past and present with respect to future problems and solutions.
- Describe and communicate physical and chemical Earth processes in preparation for transfer and/or employment in Geology or related fields.

Degree Major Requirements

DEPT/NO.	TITLE	UNITS
Required Courses: (28 units)		
GEOL 1	Introduction to Physical Geology	4
GEOL 3	Historical Geology	3
GEOL 3L	Historical Geology Laboratory	1
CHEM 1A	General Chemistry	5
CHEM 1B	General Chemistry	5
MATH 3A	Calculus I	5
MATH 3B	Calculus II	5
Recommended: at least one of the following GE courses:		
ANTHR 1	Introduction to Physical Anthropology	3
GEOG 1	Physical Geography	3
GEOG 14	Introduction to Geographic Information Systems	4
GEOL 2	Introduction to Mineralogy	4
GEOL 18	Geology of California	3
GEOL 22	California Coast Range Studies	3
Total units required for major:		28
G.E. and Elective Units Required:		32
Total Units Required for Degree:		60

Geology CERTIFICATE OF ACHIEVEMENT

The program of study that leads to a Certificate of Achievement in Geology gives students the opportunity to learn the principles and practices in the various fields of Geology and form a solid knowledge base that will serve as preparation for employment and/or future studies. Upon completion of this program, students will be well prepared for employment enhancement and advancement, as well as entry-level employment in Geology and related fields.

The Certificate of Achievement in Geology will be awarded upon completion of the major course requirements listed below.

Career Opportunities

Energy resources technicians, laboratory research, professor, hydrologist, flood control specialist, volcanologist, environmental clean-up resource specialist, pollution control manager, seismologist, many other opportunities in geological resource exploration and management.

Program Learning Outcomes

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Total Units Required for Certificate:		28

Geology (GEOL)

Geology is the scientific study of the origin, history, and structure of the Earth. At College of Alameda, students will learn about the evolution of the Earth and develop an appreciation and understanding of the processes that created and changed the Earth over time.

Career options for a professional geologist include; energy resources technicians, laboratory research, professor, hydrologist, flood control specialist, volcanologist, environmental clean-up resource specialist, pollution control manager, seismologist, many other opportunities in geological resource exploration and management.

GEOL 1

Introduction to Physical Geology

- 4 units, 3 hours lecture, 3 hours laboratory (GR)
- Acceptable for credit: CSU, UC

Survey of materials and structures comprising the outer portion of the earth, and geologic processes responsible for sculpturing the earth: Plate tectonics and mountain building; formation of minerals and igneous, sedimentary and metamorphic rocks; deformation of rocks by folding and faulting; and erosion of the land surface. Two one-day field trips required. 1914.00
AA/AS area 1; CSU area B1, B3; IGETC area 5A & 5C

GEOL 2

Introduction to Mineralogy

- 4 units, 3 hours lecture, 3 hours laboratory (GR)
- Prerequisites: CHEM 1A or CHEM 30A
- Recommended Preparation: GEOL 10 or ENGL 1A
- Acceptable for credit: CSU, UC

Introduction to and classification of the origin of minerals through chemical and physical tests: Spectroscopic, optical plus electron microscopic and x-ray diffraction analyses; study of crystal structures with models, natural crystals, computer visualization, and stereographic projections. Course will include one or more field trips. 1914.00
AA/AS area 1; CSU area B1, B3; IGETC area 5A, 5C

GEOL 3

Historical Geology

- 3 units, 3 hours lecture (GR or P/NP)

Introduction to Earth's history and the life it supports: Geologic dating, global tectonics, stratigraphy, fossils, biological evolution, the planet's origin and the processes that have influenced paleogeography during the past 4.6 billion years. 1914.00

GEOL 3L

Historical Geology Laboratory

- 1 units, 3 hours laboratory (GR or P/NP)
- Prerequisite or Corequisite: GEOL 3

Laboratory component of GEOL 003: Exercises in geologic dating, plate tectonics, stratigraphy, fossils, biological evolution, the planet's origin and the processes that have influenced paleogeography during the past 4.6 billion years. 1914.00

GEOL 10

Introduction to Geology

- 3 units, 3 hours lecture (GR or P/NP)
- Not open for credit to students who have completed or are currently enrolled in GEOL 1.
- Eligible for credit by examination
- Acceptable for credit: CSU, UC

Survey of structure and materials that compose the earth's surface and geologic processes responsible for shaping the earth: Nature and role of rocks and minerals; environmental processes and problems; dynamics of volcanism, earthquakes, plate tectonics, metamorphism, running water, ground water, glaciation, weathering and erosion. 1914.00

AA/AS area 1; CSU area B1; IGETC area 5A

GEOL 18

Geology of California

- 3 units, 3 hours lecture (GR)
- Recommended Preparation: GEOL 10 and ENGL 1A
- Acceptable for credit: CSU, UC

Introduction to the geology of California and the North American - Pacific plate boundary: Geologic history and present day geology of California in the context of modern plate tectonic theory; tectonic processes, geologic structures, physiographic provinces, local rocks and minerals, landforms, natural resources, geologic history, and natural hazards in the state. 1914.00

AA/AS area 1; CSU area B1; IGETC area 5A

GEOL 22

California Coast Range Studies

- 3 units, 3 hours lecture (GR)
- Recommended Preparation: ENGL 1A
- Acceptable for credit: CSU, UC

Introduction to and field survey of Coast Range geology: Exploration of the San Andreas transform plate boundary and extinct subduction zone, observation of accessible blueschist metamorphic rocks, ophiolites, ophiolitic melange and volcanic rocks; hands on field geology observation experience.

AA/AS area 1; CSU area B1; IGETC area 5A

GEOL 49

Independent Study in Geology

- .5-5 units, .5-5 hours lecture (GR)
- Acceptable for credit: CSU

See section on Independent Study. 1914.00