

Geology

Science, Mathematics & Engineering

Dean
Robert Montañez
Phone
(916) 691-7204
Area Office
LRC 121

Counseling
(916) 691-7316
Cooperative Work Experience
(916) 691-7372

DEGREE

A.S. — Geology

See also:

Professional Applications of Geographic Information Systems (GIS) (Earth Science emphasis - page 192)

Program Description

Geology is the study of the origin and evolution of the earth, utilizing the principles of mathematics, chemistry, physics and biology. The concept of geologic time and the principles of uniformitarianism help geologists to understand the processes that shape the earth and its environments. Geologists study rocks, minerals and fossils in an effort to draw conclusions about both the earth's observable surface processes that meet the eye, and the earth's interior.

All CRC Geology courses satisfy lower division General Education requirements for the A.A., A.S., B.A., and B.S. degrees. For transfer students earning a Baccalaureate Degree in Geology, satisfactory completion of the CRC Geology curriculum provides a solid foundation and the standard prerequisites for upper division coursework. Geology majors planning to transfer to four-year institutions should take Geology 300, 301, 310, and 311.

Career Opportunities

- Geologist (for private industry or the government)
- Environmental planner or consultant
- Earth Science Educator (middle school through university)
- Paleontologist
- Petrologist
- Natural Resource Management
- Cartographer/Stratigrapher
- Park Naturalist

Some Career Opportunities require more than two years of college study.

Highlights

- Comprehensive lower division course offerings, including a Physical Laboratory, Mineral Laboratory and Field Course
- Dynamic geologic environment near the Sierra Nevada, San Andreas Fault, and Sacramento Delta
- Internships available with State of California, County of Sacramento, and Federal Land Management Agencies
- A Mathematics, Engineering and Science Achievement (MESA) program

NOTE TO TRANSFER STUDENTS:

If you are interested in transferring to a four-year college or university to pursue a bachelor's degree in this major, it is critical that you meet with a CRC counselor to select and plan the courses for your major. Schools vary widely in terms of the required preparation. The courses that CRC requires for an associate's degree in this major may be different from the requirements needed for the bachelor's degree.

For information about the student learning outcomes for this program, see <http://www.crc.losrios.edu/pslo>

Field Study Classes at Cosumnes River College

Nature is often the best classroom! Come learn outside in Cosumnes River College's field study courses. These classes consist of short classroom sessions followed by extended trips to some of the most unique and beautiful environments in California, including Big Sur, Monterey Bay, Mt. Lassen, Point Reyes, Yosemite and more! These short-term classes are offered by several departments, including Biology, Geography, Geology, Photography, and Physical Education. For more information about specific classes, consult the class schedule or contact each department.



DEGREE

A.S. — Geology
CODE #0642

This degree is designed to meet common lower division requirements for a major in geology.

REQUIRED PROGRAM.....		Units
CHEM 400	General Chemistry	5
CHEM 401	General Chemistry	5
GEOL 300	Physical Geology	3
GEOL 301	Physical Geology Laboratory	1
GEOL 310	Historical Geology	3
GEOL 311	Historical Geology Laboratory	1
MATH 400	Calculus I.....	5
MATH 401	Calculus II.....	5
TOTAL UNITS REQUIRED		28

G.E. Graduation Requirements for this degree - see pages 20-21

GEOLOGY (GEOL)

GEOL 300

Physical Geology

3 Units

Prerequisite: None

Advisory: Concurrent enrollment in GEOL 301.

General Education: AA/AS Area IV; CSU Area B1; IGETC Area 5A

Course Transferable to UC/CSU

Hours: 54 hours LEC

Physical geology is an introduction to the composition and dynamics of the earth from the atomic scale of minerals to the global scale of plate tectonics. Topics include the composition of minerals and rock, volcanism, earth structures, earthquakes, erosion and surface processes, geologic time, geologic hazards, and plate tectonics. In this course, attention will focus on the rocks, landscapes, and scenic areas of the American West. Emphasis is placed on how humans affect the environment. Successful completion of physical geology prepares the student to recognize, understand, and appreciate processes which continually change our earth.

GEOL 301

Physical Geology Laboratory

1 Unit

Prerequisite: None

Corequisite: GEOL 300 (may be taken previously)

General Education: CSU Area B3; IGETC Area 5A

Course Transferable to UC/CSU

Hours: 54 hours LAB

This course provides “hands-on” experience with the tools and skills discussed in Physical Geology (GEOL 300). Lab topics include mineral and rock identification, map and air photograph interpretation and landform identification, and introduction to the study of geologic maps and cross-sections.

GEOL 305

Earth Science

3 Units

Prerequisite: None

General Education: AA/AS Area IV; CSU Area B1; IGETC Area 5A

Course Transferable to UC/CSU

See UC Limitations & Counselor

Hours: 54 hours LEC

This course is an introductory course covering major topics in geology, oceanography, meteorology, astronomy, scientific method, and philosophy of science. This course is designed for non-science majors. Not open to students who have received credit for GEOL 300 or GEOL 310.

GEOL 306

Earth Science Laboratory

1 Unit

Prerequisite: None

Corequisite: GEOL 305

General Education: CSU Area B3; IGETC Area 5A

Course Transferable to UC/CSU

See UC Limitations & Counselor

Hours: 54 hours LAB

This course emphasizes scientific methods and systematic laboratory procedures. Topics include 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 open to students who have received credit for GEOL 300 or GEOL 301.

GEOL 310

Historical Geology

3 Units

Prerequisite: None

Advisory: GEOL 300 or 305, an introductory geology or earth science course

General Education: AA/AS Area IV; CSU Area B1; IGETC Area 5A

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course studies the origin and geologic history of Earth and the evolution of its plant and animal inhabitants. Plate tectonic theory is used to explain changes in composition and structure of rocks in Earth's crust from the formation of Earth to the present. Emphasis is placed on the formation of sedimentary rocks for the purpose of understanding how they and the fossils contained within them record changes in Earth environment and processes. Evolution and extinction are studied to understand how they reflect environmental changes in Earth's ocean, atmosphere, and surface.

GEOL 311

Historical Geology Laboratory

1 Unit

Prerequisite: None

Corequisite: GEOL 310 (may be taken concurrently)

Advisory: GEOL 300

General Education: CSU Area B3; IGETC Area 5A

Course Transferable to UC/CSU

Hours: 54 hours LAB

Laboratory studies 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 or an appropriate alternative activity will be required as an introduction to sedimentary environments and field methods in geology.

GEOL 330

Introduction to Oceanography

3 Units

Prerequisite: None

General Education: AA/AS Area IV; CSU Area B1; IGETC Area 5A

Course Transferable to UC/CSU

Hours: 54 hours LEC

The course will provide an introduction to the basic principles and practices of oceanography. Topics will be presented in terms of the applications of physics, geology, chemistry, and biology to a study of the world's oceans. Specific topics will include planetary science and earth origin, the geologic timescale, geography and location systems, matter, marine provinces, sediments, seismology, plate tectonics, seawater composition, geochemical distributions, deep ocean circulations, winds and surface circulation, waves, tides, estuarine environment, biological production, nekton, plankton, and benthic organisms.

GEOL 342

Geology of the National Parks

3 Units

Prerequisite: None

General Education: AA/AS Area IV; CSU Area B1

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course introduces students to Earth's geologic story as revealed by the rocks and landscapes in our State and National parklands. Attention will focus on how natural Earth processes have formed our State and National parklands. This course addresses surface shaping processes such as volcanism, plutonism, deformation, sedimentation, glaciation and fluvial activity as displayed in our parks and monuments.

GEOL 345

Geology of California

3 Units

Prerequisite: None

General Education: AA/AS Area IV; CSU Area B1; IGETC Area 5A

Course Transferable to UC/CSU

Hours: 54 hours LEC

This course provides a survey of the physical and historical aspects of California's geology, emphasizing the linkage between humans and geology through socio-economic impacts. This course is recommended for non-majors and majors in geology and is of particular value to science, engineering, environmental studies, education, and economic majors.

GEOL 347

Geologic Mining History of the Mother Lode

3 Units

Prerequisite: None

Course Transferable to CSU

Hours: 54 hours LEC

This is an introductory course covering the mining and geologic history of California's Mother Lode region. Emphasis is on understanding the formation of the area's gold deposits, past and present mining methods, and the legacy left by the early miners.

GEOL 351

Introduction to Mineralogy

3 Units

Prerequisite: None

Advisory: An introductory geology course and an elementary chemistry course

General Education: AA/AS Area IV; CSU Area B1; CSU Area B3

Course Transferable to CSU

Hours: 36 hours LEC ; 54 hours LAB

The properties, relationships and origins of minerals, crystallography and determinative mineralogy; economic importance of minerals in California and on a world-wide basis.

GEOL 390

Field Studies in Geology

.5-4 Units

Prerequisite: None

Course Transferable to UC/CSU

See UC Limitations & Counselor

Hours: 18 hours LEC ; 54 hours LAB

This course covers the study of geologic principles and processes of specific areas (mountains, deserts, great valley, coastal region, etc.). For specific details, see the course description(s) listed in the schedule. Students will be responsible for providing their own lodging (or camping equipment) and meals. This course may be taken up to four times for credit under a new topic or destination.

GEOL 495

Independent Studies in Geology

1-3 Units

Prerequisite: None

Course Transferable to CSU

See UC Limitations & Counselor

Hours: 18 hours LEC ; 54 hours LAB

GEOL 499

Experimental Offering in Geology

.5-4 Units

Prerequisite: None

Course Transferable to CSU

See UC Limitations & Counselor

Hours: 54 hours LEC ; 54 hours LAB