

GEOLOGY

Bachelor of Science degree with a major in Geology

Bachelor of Arts degree with a major in Geology

Bachelor of Arts degree with a major in Geology — Geosciences concentration

Minor in Geology

See *Environmental Systems* for details on the *Master of Science* degree.

Department Chair

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The Program

The geology and geosciences programs provide students with a solid foundation in Earth system science, how the Earth and its processes affect humans, and how human activities affect the Earth.

Students completing this program will:

- understand the fundamental concepts of Earth's many systems
- be able to find, analyze, and assess scientifically credible information about the Earth in both printed and electronic forms
- communicate about Earth science in a meaningful way both verbally and in writing
- be able to make informed and responsible decisions regarding the Earth and its resources
- have the background to gain employment and/or admission to graduate studies in the Earth sciences.

The BS and BA degrees in geology are recommended for students who plan to seek work as professional geologists and/or enter graduate school in the geosciences. The BA degree — Geosciences concentration is aimed toward students who are interested in careers or pursuing graduate work in environmental science, hazard/resource management and planning, environmental policy, and teaching.

Humboldt's setting provides a natural laboratory to study earthquakes, tsunamis, landsliding, river processes and rapid coastal erosion. The area also contains good exposures of nearshore marine deposits and fossils recording the late Cenozoic history

of the region. Students frequently take field trips to surrounding areas both along the coast and inland. Our program has many opportunities for independent research and field work. At Humboldt, you will also be able to use research tools including petrographic microscopes, scanning electron microscope (SEM), a high-pressure/temperature experimental petrology lab, geophysical exploration equipment and a real-time kinematic GPS unit. Employers seek out Humboldt geology graduates because of their competence in the field and rigorous scientific background.

Career opportunities include positions with local/state/federal government scientific and resource management agencies, geotechnical and environmental consulting firms, nonprofit conservation agencies, and universities/colleges/K-12 schools. Job titles of Humboldt geology graduates include: geologist, petrologist, volcanologist, consultant, technical writer or editor, seismologist, emergency manager, hazards mitigation specialist, field geologist, marine geologist, hydrologist, geomorphologist, museum curator, and science teacher.

Preparation

In high school take mathematics, chemistry, physics, biology and any environmental studies that may be available. Students need to be able to write and speak effectively in English and are expected to be proficient in computer applications.

REQUIREMENTS FOR THE MAJORS

For a description of degree requirements to be fulfilled in addition to those listed below for the major, please see "The Bachelor's Degree" section of the catalog, pp. 61-77, and "The Master's Degree" section of the catalog, pp. 78-80.

Geology Core Courses

Lower Division Core

- GEOLOGY 109 (4) General Geology
GEOLOGY 235 (1) Geology Field Methods I

Upper Division Core

- GEOLOGY 306 (3) General Geomorphology
GEOLOGY 312 (4) Earth Materials
GEOLOGY 332 (4) Sedimentary Geology
GEOLOGY 334 (4) Structural Geology
GEOLOGY 335 (1) Geology Field Methods II
GEOLOGY 485 (1) Seminar

BA and BS in Geology

Geology Core, plus:

Lower Division

- CHEM 109 (5) General Chemistry I
CHEM 110 (5) General Chemistry II
MATH 109 (4) Calculus I
MATH 110 (4) Calculus II

One of the following two series:

- PHYX 106 (4) College Physics:
Mechanics & Heat
- PHYX 107 (4) College Physics:
Electromagnetism
& Modern Physics

OR

- PHYX 109 (4) General Physics I:
Mechanics
- PHYX 110 (4) General Physics II:
Electricity, Heat

One of the following:

- MATH 210 (4) Calculus III
STAT 108 (4) Elementary Statistics
STAT 109 (4) Introductory Biostatistics

Upper Division

- GEOLOGY 314 (4) Optical Mineralogy-
Petrography
GEOLOGY 344 (4) Paleontology
GEOLOGY 435 (1) Geology Field Methods III
GEOLOGY 475 (4) Geology Field Camp
GEOLOGY 490 (1), GEOLOGY 491 (1), GEOLOGY 492 (2)
Senior Thesis
[BS degree only]

NOTE: The Senior Thesis requirement is what distinguishes the BS degree from the BA degree.

Five units (BA degree) or six units (BS degree) of approved upper division geology areas of specialization, including at least one of the following:

- GEOLOGY 457 (3) Engineering Geology
GEOLOGY 460 (3) Solid Earth Geophysics
GEOLOGY 482 (1-3) Instrumental Methods
in Geology
GEOLOGY 531 (1-3) Advanced Physical Geology
GEOLOGY 550 (3) Fluvial Processes
GEOLOGY 551 (3) Hillslope Processes
GEOLOGY 553 (4) Quaternary Stratigraphy
GEOLOGY 554 (2) Advanced Geology Field
Methods
GEOLOGY 555 (3) Neotectonics
GEOLOGY 558 (3) Geomorphology of Soils
GEOLOGY 561 (3) Applied Geophysics

BA Geology — Geosciences

Concentration

Geology Core, plus:

Lower Division

- CHEM 107 (4) Fundamentals of Chemistry
GEOL 110 (1-2) Field Geology - Western US
GSP 270 (3) Geographic Information Science (GIS)
MATH 105 (3) Calculus for the Biological Sciences & NR
PHYX 106 (4) College Physics: Mechanics & Heat

One of the following:

- BIOL 105 (4) Principles of Biology
BOT 105 (4) General Botany
ZOO 110 (4) Introductory Zoology

One of the following:

- STAT 108 (4) Elementary Statistics
STAT 109 (4) Introductory Biostatistics

One of the following:

- OCN 109/109L (3/1) General Oceanography /Lab, **or**
WSHD 310 (4) Hydrology & Watershed Management

Upper Division

- GEOL 300 (3) Geology of California
GEOL 303 (3) Earth Resources & Global Environmental Change
GEOL 308 (3) Natural Disasters
GEOL 308L (1) Natural Disasters Lab (option in place of 1 unit of GEOL 700)
GEOL 455 (1) Geology Colloquium
GEOL 465 (2) Geosciences Senior Project
GEOL 700 (2) In-Service Professional Development (2 units or 1 unit & GEOL 308L)

One of the following:

- GEOG 352 (3) Regional Climatology
CHEM 370 (3) Earth System Chemistry

One of the following:

- GEOL 305 (3) Fossils, Life & Evolution
GEOL 344 (4) Paleontology

REQUIREMENTS FOR THE MINOR

- GEOL 109 (4) General Geology
GEOL 306 (3) General Geomorphology

One of the following:

- GEOL 110 (1-2) Field Geology - Western US
GEOL 235 (1) Geology Field Methods I

At least one of the following four courses:

- GEOL 300 (3) Geology of California
GEOL 303 (3) Earth Resources & Global Environmental Change
GEOL 305 (3) Fossils, Life & Evolution
GEOL 308 (3) Natural Disasters

One of the following:

- GEOL 312 (4) Earth Materials
GEOL 332 (4) Sedimentary Geology

Plus 3 units of approved upper division GEOL coursework.

