GEOLOGY, BACHELOR OF ARTS

College of Letters & Science

"Civilization exists by geological consent—subject to change without notice." — Will Durant

Geology is the study of the Earth, and in particular its history, structure, and the processes that have molded our planet and its biosphere. Geology involves the origin of continents & ocean basins, earthquakes & volcanoes, variations in global climate, and how these physical changes impact the evolution of life. All of these planetary processes are viewed through the prism of "deep time," a perspective unique to geologists and one that distinguishes geology from most of the other physical sciences.

A significant component of geology is oriented toward the interaction between humans and the Earth. This aspect includes the study of resources such as minerals, oil, and water; identification & mitigation of Earth hazards such as earthquakes, landslides, floods, and volcanic eruptions; identification & mitigation of polluted ground water; land use planning; and the study of ancient & modern climate change.

The Program

Students interested in becoming professional geologists or continuing their geological studies at the graduate level should choose the Bachelor of Science degree program. The Bachelor of Arts program is for students interested in an interdisciplinary program of study, or who plan to go into pre-college teaching. The upper division electives are not restricted to geology courses but must be chosen to provide a relevant, coherent, and in-depth program of study.

Undergraduate Research

The geosciences span many disciplines at UC Davis, and students have opportunities to participate in undergraduate research (https://eps.ucdavis.edu/students/undergrad/gel/research/) in a variety of interest areas. Many students choose to complete a senior thesis to develop their research and writing skills during their senior year.

Internships & Careers

A degree in Geology provides students with knowledge and practical experience needed to pursue careers (https://eps.ucdavis.edu/students/careers/) in the geosciences (government, private sector, research, teaching). The major program includes flexibility to participate in research, internships, and fieldwork to help prepare students for these career paths.

Global Learning in Geology

Consider studying or interning abroad through programs available through the Global Learning Hub (https://eps.ucdavis.edu/students/undergrad/gel/studyabroad/).

Get Involved

Find your community (https://eps.ucdavis.edu/students/undergrad/gel/involved/) through clubs, events, seminars, and workshops relating to geoscience.

Graduation Honors

Students graduating from the College of Letters & Science are eligible for Departmental Honors, depending on their GPA and whether or not they complete a Senior Thesis. Students who graduate with a GPA in the top percentages of their college (https://catalog.ucdavis.edu/academic-information-policies-regulations/honors-prizes/) will automatically graduate with Honors. Students who qualify for Honors at graduation may also be eligible for High Honors or Highest Honors, based upon the quality of their Senior Thesis (https://eps.ucdavis.edu/students/undergrad/gel/research/) (course number 194A-194B) or Senior Honors Thesis (course number 194HA-194HB). It is Department of Earth and Planetary Sciences policy that an "A-" grade on the thesis will earn the student High Honors, and an "A" grade will earn the student Highest Honors.

Advising

Visit the staff major advisor (https://eps.ucdavis.edu/students/undergrad/advising/) for help navigating major requirements and planning for your degree. Visit the faculty major advisors (https://eps.ucdavis.edu/students/undergrad/advising/) for additional advice on courses, careers, and graduate school. Faculty advisors: R. Motani, D. A. Osleger, M. Rudolph.

Visit the College of Letters & Science advisors (https://lettersandscience.ucdavis.edu/advising/) for help navigating university requirements (https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/) and college requirements (https://catalog.ucdavis.edu/academic-information-policies-regulations/college-major-minor-information/).

Graduate Study

The coursework, research and internship opportunities, and fieldwork requirements in the Geology major help prepare students to enter graduate programs (https://eps.ucdavis.edu/students/careers/gradschool/) to continue their studies and prepare for their career. Students should meet with advisors and faculty to build a strong application for graduate school through additional independent research or other co-curricular involvements.

The major requirements below are in addition to meeting University Degree Requirements (https://catalog.ucdavis.edu/undergraduate-education/university-degree-requirements/) & College Degree Requirements (https://catalog.ucdavis.edu/undergraduate-education/college-degree-requirements/); unless otherwise noted. The minimum number of units required for the Geology Bachelor of Arts is 79.

Code	Title	Units
Preparatory Subject Matter		
Geology		
GEL 050	Physical Geology	3
GEL 050L	Physical Geology Laboratory	2
GEL 053	Introduction to Geobiology (Discontinued for fall 2026) **	3
or EPS 142		
or EPS 003		
or GEL 003 DISCONTINUED FOR FALL 2026**		
GEL 055	Introduction to Geochemistry (Discontinued for winter 2026) **	3-5
or CHE 002C	General Chemistry	
or CHE 004C	General Chemistry for the Physical Sciences & Engineering	
GEL 060	Earth Materials: Introduction (Discontinued for fall 2026) **	4
Mathematics		

Choose a series:		6-8
MAT 016A & MAT 016B DISCC	and (Discontinued for spring 2025) **	
MAT 017A & MAT 017B	Calculus for Biology & Medicine and Calculus for Biology & Medicine	
MAT 019A & MAT 019B	Calculus for Data-Driven Applications and Calculus for Data-Driven Applications	
MAT 021A & MAT 021B	Calculus and Calculus	
Chemistry		
Choose a series:		10
CHE 002A & CHE 002B	General Chemistry and General Chemistry	
CHE 004A & CHE 004B	General Chemistry for the Physical Sciences & Engineering and General Chemistry for the Physical Sciences & Engineering	
Physics		
Choose a series:		8-10
PHY 007A & PHY 007B	General Physics and General Physics	
PHY 009A & PHY 009B	Classical Physics and Classical Physics	
PHY 009HA & PHY 009HB	Honors Physics and Honors Physics	
Statistics		
Choose one:		4
STA 013	Elementary Statistics	
or STA 013V		
or STA 013Y	Elementary Statistics	
STA 032	Gateway to Statistical Data Science	
STA 100	Applied Statistics for Biological Sciences	
Preparatory Subject Matter Subtotal		43-49
Depth Subject Matter		
Geology		
EPS 102		2
or GEL 101 DISCONTINUED FOR FALL 2026**		
EPS 102L		2
or GEL 101L DISCO		
EPS 103		4
or GEL 103 DISCONTINUED FOR SPRING 2026 **		
EPS 109		3
or GEL 109 DISCON		
EPS 109L		2
or GEL 109L DISCONTINUED FOR FALL 2026 **		
GEL 107	Earth History: Paleobiology	3
GEL 107L	Earth History: Paleobiology Laboratory	2
GEL 108	Earth History: Paleoclimates	3
Upper Division Electives		
Choose 14 units:		14
Choose from courses GEL 130-194 or pre-selected non-GEL courses. Only one of GEL 181/EDU 181 or GEL 183/EDU 183 or GEL 185A or 185B or 186 may be applied toward elective credit. Pre-selected non-GEL courses in related fields: CHE 100, ECI 171/ECI 171L, ECI 175, ESM 100, ESM 186, ESP 152, HYD 144, HYD 146, LED 150/LDA 150/ABT 150, SSC 100, WFC 102. Other courses in related fields must be approved in advance by the major advisor. No more than 3 units of upper division elective credit for courses GEL 115-GEL 120. No more than 6 units of upper division elective credit for GEL 192 or GEL 194A-GEL 194B or GEL 194HA-GEL 194HB. Students who receive approval to do a senior thesis for part of the capstone requirement may not use GEL 194A-GEL 194B or GEL 194HA-GEL 194HB for the upper division elective courses.		
GEL 130	Non-Renewable Natural Resources (Discontinued for winter 2026) **	
GEL 131	Risk: Natural Hazards & Related Phenomena	
GEL 132	Introductory Inorganic Geochemistry	
GEL 133	Environmental Geochemistry (Discontinued for fall 2026) **	
or EPS 133		
GEL 134	Environmental Geology & Land Use Planning (Discontinued for fall 2026) **	
or EPS 134		
GEL 136	Ecogeomorphology of Rivers & Streams (Discontinued for fall 2026) **	
or EPS 136		
GEL 138	Introductory Volcanology (Discontinued for fall 2026) **	
or EPS 138		
GEL 139	Rivers: Form, Function & Management (Discontinued for fall 2026) **	
GEL 140	Introduction to Process Geomorphology (Discontinued for winter 2026) **	
GEL 141	Evolutionary History of Vertebrates (Discontinued for fall 2026) **	
or EPS 141		
GEL 142	Basin Analysis (Discontinued for fall 2026) **	
GEL 143	Advanced Igneous Petrology (Discontinued for winter 2026) **	
GEL 144	Historical Ecology (Discontinued for fall 2026) **	
or EPS 144		
GEL 145	Advanced Metamorphic Petrology (Discontinued for winter 2026) **	
GEL 146	Radiogenic Isotope Geochemistry & Cosmochemistry (Discontinued for fall 2026) **	
or EPS 146		
GEL 147	Geology of Ore Deposits (Discontinued for winter 2026) **	
GEL 148	Stable Isotopes & Geochemical Tracers (Discontinued for winter 2026) **	
GEL 149	Geothermal Systems (Discontinued for winter 2026) **	
GEL 150A	Physical & Chemical Oceanography (Discontinued for winter 2026) **	
GEL 150B/ ESP 150B DISCONTINUED FOR FALL 2026 **	Geological Oceanography (Discontinued for fall 2026) **	
or EPS 150B		

GEL 150C/ ESP 150C DISCONT or EPS 150C	Biological Oceanography (GEL 150C Discontinued for fall 2026) **
GEL 152	Paleobiology of Protista (Discontinued for winter 2026) **
GEL 156	Hydrogeology & Contaminant Transport (Discontinued for winter 2026) **
GEL 160 or EPS 160	Geological Data Analysis (Discontinued for fall 2026) **
GEL 161 or EPS 161	Geophysical Field Methods (Discontinued for fall 2026) **
GEL 162 or EPS 162	Geophysics of the Solid Earth (Discontinued for fall 2026) **
GEL 163 or EPS 163	Planetary Geology & Geophysics (Discontinued for fall 2026) **
GEL 175	Advanced Field Geology
GEL/EDU 181	Teaching in Science & Mathematics
GEL 182 or EPS 176	Field Studies in Marine Geochemistry (Discontinued for winter 2026) **
GEL 183	Teaching High School Mathematics & Science (Discontinued for winter 2026) **
GEL 185A	Conceptual Integrated Science for Non-Science Majors: The Physical World (Discontinued for winter 2026) **
GEL 185B	Conceptual Integrated Science for Non-Science Majors: Earth System Science (Discontinued for winter 2026) **
GEL 186	Facilitating Learning in STEM Classrooms
GEL 190	Seminar in Geology (Discontinued for winter 2026) **
GEL 192	Internship in Geology (Discontinued for winter 2026) **
GEL 194A or EPS 194A	Senior Thesis (Discontinued for fall 2026) **
GEL 194B or EPS 194A	Senior Thesis (Discontinued for fall 2026) **
GEL 194HA or EPS 194HA	Senior Honors Project (Discontinued for fall 2026) **
GEL 194HB or EPS 194HB	Senior Honors Project (Discontinued for fall 2026) **
CHE 100	Environmental Water Chemistry
ECI 171	Soil Mechanics
ECI 171L	Soil Mechanics Laboratory
ESM 100	Introduction to Water Science
ESM 186	Environmental Remote Sensing
ESP 152	Coastal Oceanography
HYD/EBS 144	Groundwater Hydrology
HYD 146	Hydrogeology & Contaminant Transport (Discontinued for winter 2026) **
LDA 150	Introduction to Geographic Information Systems (Discontinued for winter 2026) **
or ABT 150	Introduction to Geographic Information Systems
or LED 150	Introduction to Geographic Information Systems
SSC 100	Principles of Soil Science
WFC 102	Field Studies in Fish Biology
WFC 102L	Field Studies in Fish Biology: Laboratory
Depth Subject Matter Subtotal	35
Total Units	**78-84**

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Course(s) discontinued; see your advisor for course options.