GEOLOGY BS

Geology looks at some of the most important issues in society today, and there's no better time to be a geology major than right now! Concerns involving water resources, energy, mineral resources, and environmental cleanup all have their foundations in geology.

With the Bachelor of Science in Geology, you have many opportunities with government agencies, private consulting firms, and other non-government organizations. The program also prepares you for graduate studies in a wide variety of fields.

The program is highly structured to give you fundamental skills and knowledge in how rocks are formed (petrology, mineralogy, and volcanology), how they can be deformed (structural geology), and how we can use rocks to inform us about deep geologic time (paleontology and sedimentary geology) to form basins and valuable natural resources (economic geology). Courses focus on applied problems that prepare students for field and laboratory work in the professional world to help solve some of the most pressing environmental issues of our time.

Advising Requirement

Advising is mandatory for this program. Consult your department advisor or program coordinator for information.

E-advising Tools

Use the interactive e-advising tools designed to help students graduate within four years. These tools can be accessed through the Student Center in the Portal (https://portal.csuchico.edu).

Grading Requirement

All courses taken to fulfill program course requirements must be taken for a letter grade except those courses specified by the department as credit/no credit grading only.

Some courses require a minimum grade to progress in the program. Minimum grade requirements, including those listed on course requisites, are considered graduation requirements.

Course Requirements for the Major: 64-65 units

Completion of the following courses, or their approved transfer equivalents, is required of all candidates for this degree. Courses in this program may complete more than one graduation requirement.

Course	Title	Units
Lower Division [1]		
CHEM 111	General Chemistry I	4
ERTH 102	Physical Geology	3
ERTH 203	Evolution of the Earth	3
ERTH 265	Soils and Surficial Processes	3
Select one of the following:		4
MATH 109	Survey of Calculus	
MATH 120	Analytic Geometry and Calculus	
Select one of the following:		4
PHYS 202A	General Physics I	
PHYS 204A	Physics for Students of Science and Engineering: Mechanics	
Select one of the following:		3-4
MATH 121	Analytic Geometry and Calculus	
MATH 315	Applied Statistical Methods I	
Upper Division		
ERTH 303	Invertebrate Paleontology	3
ERTH 306	Mineralogy and Lithology	4
ERTH 307	Stratigraphy	3
ERTH 360	Field Methods	2
ERTH 370W	Energy in the Human Environment (W)	3
ERTH 403	Igneous and Metamorphic Petrology	4
ERTH 408	Structural Geology	4
ERTH 455	Sedimentary Basin Analysis	3
ERTH 471	Field Geology	2
ERTH 572W	Advanced Field Geology (W)	3
Select three of the following:		9
ERTH 325	Geology of California	
ERTH 415	Hydrogeology	
ERTH 425	Surficial Processes	
ERTH 436	Volcanology	
ERTH 565	Geochemistry	
ERTH 580	Geological Evolution of North America	
ERTH 640	Hydrogeochemistry	
ERTH 645	Applied Geophysics	
ERTH 649	Economic Geology	
ERTH 655	Fossil Fuels	
ERTH 670	Environmental and Engineering Geology	
Total Units		**64-65**

[1] Students who are considering graduate school should talk with an advisor about additional preparatory courses in chemistry, mathematics, and physics. The department very strongly recommends CHEM 111, CHEM 112, MATH 120, MATH 121; either PHYS 202A and PHYS 202B or PHYS 204A, PHYS 204B, and PHYS 204C.

Electives Requirement

To complete the total units required for the bachelor's degree, select additional elective courses from the total University offerings. Consult with an advisor to help select courses that provide breadth to your University experience and possibly help satisfy credential, professional, or graduate school prerequisites or support completion of a minor.

Honors in the Major

Honors in the Major is a program of independent work in your major. It requires six units of honors coursework completed over two semesters.

The Honors in the Major program allows you to work closely with a faculty mentor in your area of interest on an original performance or research project. This year-long collaboration allows you to work in your field at a professional level and culminates in a public presentation of your work. Students sometimes take their projects beyond the University for submission in professional journals, presentation at conferences, or academic competition. Such experience is valuable for graduate

school and professional life. Your honors work will be recognized at your graduation, on your permanent transcripts, and on your diploma. It is often accompanied by letters of commendation from your mentor in the department or the department chair.

Some common features of Honors in the Major program are:

- You must take six units of Honors in the Major coursework. All six units are honors courses (marked by a suffix of H), and at least three of these units are independent study (399H, 499H, 599H) as specified by your department. You must complete each course with a minimum grade of B.
- You must have completed 9 units of upper-division coursework or 21 overall units in your major before you can be admitted to Honors in the Major. Check the requirements for your major carefully, as there may be specific courses that must be included in these units.
- Yourcumulative#GPA should be at least 3.5 or within the top 5% of majors in your department.
- Your GPAin your major#should be at least 3.5 or within the top 5% of majors in your department.
- Most students apply for or are invited to participate in Honors in the Major during the second semester of their junior year. Then they complete the six units of coursework over the two semesters of their senior year.
- Your honors work culminates with a public presentation of your honors project.

Honors in the Major is not part of the Honors Program. Each department administers its own program. Please contact your major department or major advisor to apply.

See Bachelor's Degree Requirements (https://catalog.csuchico.edu/undergraduate-requirements/bachelors-degree-requirements/) for complete details on general degree requirements. A minimum of 39 units, including those required for the major, must be upper division.

General Education Requirements: 43 units

See General Education (https://catalog.csuchico.edu/colleges-departments/undergraduate-education-academic-success/general-education/#gerequirementstext) and the Class Schedule (http://www.csuchico.edu/schedule/) for the most current information on General Education requirements and course offerings.

This major has approved GE modification(s). See below for information on how to apply these modification(s).

- ERTH 572W is an approved major course substitution for Upper Division Physical and Biological Sciences (UD-5).

American Institutions Course Requirements: 6 units

The American Institutions graduation requirement, as mandated in Title 5, Section 40404 (https://govt.westlaw.com/calregs/Document/I56C041434C6911EC93A8000D3A7C4BC3/?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default), requires that students satisfactorily complete courses in United States history, the US Constitution, and government and American ideals (including California state and local government). At Chico State, HIST 130 meets the US history requirement (US-1), and POLS 155 meets the US Constitution and government requirement (US-2) and the California state and local government requirement (US-3). POLS 155 also fulfills three units of GE Area 4, Social and Behavioral Sciences. See Bachelor's Degree Requirements (https://catalog.csuchico.edu/undergraduate-requirements/bachelors-degree-requirements/#amin) for more information.

Diversity Course Requirements: 6 units

You must complete a minimum of two courses that focus primarily on cultural diversity. At least one course must be in US Diversity (USD) and at least one in Global Cultures (GC). See Diversity Requirements (https://catalog.csuchico.edu/undergraduate-requirements/diversity-requirements/) for a full list of courses. Many courses taken to satisfy these requirements may also apply to General Education (https://catalog.csuchico.edu/colleges-departments/undergraduate-education-academic-success/general-education/).

Upper-Division Writing Requirement

Writing Across the Curriculum (EM 17-009 (https://www.csuchico.edu/pres/em/2017/17-009.shtml/)) requires you to take four Writing (W) courses, two of which are upper-division courses designated for your major. Specifically, you must:

- Take one Writing (W) course.
- Take one Graduation Writing Assessment Requirement (GW) course.
  - Complete a GE English Composition (1A) course before taking the GW course.
  - Earn a grade of C- or higher to receive GW credit.

See Writing and Math Requirements (https://catalog.csuchico.edu/undergraduate-requirements/writing-math-requirements/) for details on additional writing requirements you need to complete for graduation.

Major-Designated Courses

Writing (W) Course

- ERTH 370W Energy in the Human Environment (W)

GWAR (GW) Course

- ERTH 572W Advanced Field Geology (W)

Program Learning Outcomes (PLOs) are clear, measurable statements that describe how students demonstrate mastery of the knowledge, skills, and values of the discipline as appropriate to the degree. Graduates of this program are expected to achieve the following PLOs:

1. Recognize fundamental geologic principles. Identify core components of a specific geological system. Describe connections between core components of a system. Understand how a geologic system evolves.
2. Demonstrate proficiency in analytic and critical thinking. Use the scientific method to formulate or test hypotheses. Demonstrate skills for gathering, organizing, and/or analyzing quantitative information. Develop a model to explain a specific geological system.
3. Communicate scientific results. Access and reference published scientific information. Demonstrate proficiency in writing for the appropriate audience. Demonstrate proficiency with oral presentations.