# GEOL C162: APPLIED ENVIRONMENTAL GEOLOGY

| Item | Value |
|---|---|
| Curriculum Committee Approval Date | 02/23/2024 |
| Top Code | 191400 - Geology |
| Units | 3 Total Units |
| Hours | 54 Total Hours (Lecture Hours 54) |
| Total Outside of Class Hours | 0 |
| Course Credit Status | Credit: Degree Applicable (D) |
| Material Fee | No |
| Basic Skills | Not Basic Skills (N) |
| Repeatable | No |
| Grading Policy | Standard Letter (S),<br>• Pass/No Pass (B) |

## Course Description

An introduction to the fundamentals of Environmental Geology including the interactions between and impacts of humans with the environment in a geologic context. Course emphasizes geologic hazards, climate change, and environmental impacts of resource usage. Transfer Credit: CSU; UC.

## Course Level Student Learning Outcome(s)

1. Use concepts and theories from environmental geology to explain the occurrence of natural geologic hazards and the impact of humanity on the environment.
2. Apply the scientific method to interpret and explain data to determine whether a proposed explanation, observation, or experimental result is consistent with a hypothesis.
3. Critically analyze and evaluate data to determine its validity and role in making informed decisions about environmental issues.

## Course Objectives

- 1. Identify common naturally-occurring geologic hazards and explain the impacts they have on humans.
- 2. Explain how human activities impact the environment using data.
- 3. Use the scientific method to evaluate data and draw appropriate conclusions.
- 4. Use research to explain the impacts different human-interventions have on the environment to determine which solution is most beneficial.

## Lecture Content

Overview Earths Interior Plate Tectonics Earths Atmosphere Weather and Climate Earth Materials and Systems Minerals and Rocks Soils Water and Water Cycle Carbon Cycle Nitrogen Cycle Geologic Hazards Earthquakes Volcanoes Mass Wasting Flooding and Drought Tsunamis Climate and Sea Level Change Human Use and Impacts Human Population Waste Pollution Energy Needs Water Needs

## Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)
- DE Online Lecture (02X)

## Instructional Techniques

Lectures and discussions on environmental problems and issues; question-and-answer sessions; small-group problem solving; exercises. Classroom instruction may be supplemented by media, guest speakers and field trips.

## Reading Assignments

The students shall, each week, read the following: Selections from the textbook or similar materials Handouts given in class or provided electronically

## Writing Assignments

The student, during the course of the semester, shall: Write answers to prompts provided and exchange findings with other classmates through in-class discussion or online discussion boards Write responses to case studies Write reports based on research of relevant topics

## Out-of-class Assignments

The student, during the course of the semester, shall: Search for articles or materials that discuss research relevant to environmental geology Gather data by conducting library and/or web-based research assignments

## Demonstration of Critical Thinking

Exams, written assignments, reports, projects, presentations, and problem solving exercises require the knowledge of several concepts that are applied to reach a conclusion and select/present a valid response. The student must be able to gather data, apply it to an environmental problem or issue, and communicate the conclusions.

## Required Writing, Problem Solving, Skills Demonstration

Analyses of environmental issues and presentation of proposed solutions; reviews of case studies and expert interviews; responses to guiding questions; presentations and responses to content presented by others.

## Eligible Disciplines

Earth science: Masters degree in geology, geophysics, earth sciences, meteorology, oceanography, or paleontology OR bachelors degree in geology AND masters degree in geography, physics, or geochemistry OR the equivalent. Masters degree required.

## Textbooks Resources

1. Required Abbott, P.L. Natural Disasters, 12th ed. McGraw Hill, 2023
2. Required Montgomery, C., Seegers-Szablewski, G. . Environmental Geology, 12th ed. McGraw Hill, 2024

## Other Resources

1. Coastline Library