



COURSE OUTLINE : GEOL 102

D Credit – Degree Applicable

COURSE ID 004023

Cyclical Review: July 2020

COURSE DISCIPLINE : GEOL

COURSE NUMBER : 102

COURSE TITLE (FULL) : Environmental Geology

COURSE TITLE (SHORT) : Environmental Geology

CALIFORNIA STATE UNIVERSITY SYSTEM C-ID : GEOL 130 – Environmental Geology

CATALOG DESCRIPTION

GEOL 102 is a study of the earth and its natural hazards like earthquakes, volcanism, climate change, pollution, and human interactions with the earth environment.

Total Lecture Units: 3.00

Total Laboratory Units: 0.00

Total Course Units: 3.00

Total Lecture Hours: 54.00

Total Laboratory Hours: 0.00

Total Laboratory Hours To Be Arranged: 0.00

Total Contact Hours: 54.00

Total Out-of-Class Hours: 108.00

Recommended Preparation: ENGL 100 or ESL 141, or equivalent.



ENTRY STANDARDS

	Subject	Number	Title	Description	Include
1	ENGL	100	Writing Workshop	Read, analyze, and evaluate contemporary articles and stories to identify topic, thesis, support, transitions, conclusion, audience, and tone;	Yes
2	ENGL	100	Writing Workshop	read, analyze, and evaluate contemporary articles and stories for the comprehension of difficult content and the identification of main ideas and (topic-based) evidence;	Yes
3	ENGL	100	Writing Workshop	read, analyze, and evaluate student compositions for unity, development, use of evidence, interpretation, coherence, and variety of sentence form;	Yes
4	ENGL	100	Writing Workshop	write a summary of a contemporary article or story with correct citation techniques;	Yes
5	ENGL	100	Writing Workshop	write compositions (e.g., summaries and argumentative essays) that are easy to read and follow, though some errors in grammar, mechanics, spelling, or diction may exist;	Yes
6	ENGL	100	Writing Workshop	proofread and edit essays for content, language, citation, and formatting problems.	Yes
7	ESL	141	Grammar and Writing IV	<p>Compose a 400 to 450-word thesis-based essay which:</p> <p>(a) summarizes and cites appropriately a reading passage provided as a prompt,</p> <p>(b) includes a clear thesis statement,</p> <p>(c) uses evidence to support the thesis,</p> <p>(d) shows clear organization into an introduction, body, and conclusion, and</p> <p>(e) uses appropriate rhetorical modes such as comparison/contrast, cause/effect, and persuasion in order to support a thesis.</p>	Yes

EXIT STANDARDS

- 1 Demonstrate a fundamental understanding of concepts, principles and interactions of Earth’s systems, including: the rock cycle, plate tectonics, the hydrologic cycle, geologic hazards, the greenhouse effect, and the interactions between the geosphere, hydrosphere, atmosphere, and biosphere;
- 2 communicate impacts of energy and resource use on the environment, including climate change, waste disposal, water and air pollution;



COURSE OUTLINE : GEOL 102

D Credit – Degree Applicable

COURSE ID 004023

Cyclical Review: July 2020

- 3 recognize and describe risk factors for geologic hazards such as earthquakes, volcanism, flooding, and mass wasting; and describe how scientific process provides the information needed to develop viable mitigation strategies to address these hazards;
- 4 explain how evidence is used to support our understanding of Earth systems through the application of the scientific method;
- 5 use writing and diagrams to effectively explain complex concepts such as geologic processes, climate system dynamics, and resource management.

STUDENT LEARNING OUTCOMES

- 1 Use drawings and diagrams to outline major Earth systems and explain how their interactions control climate, the distribution of resources and the occurrence of geologic hazards.
- 2 Describe the geologic factors that control the formation of mineral resources, including fossil fuels, and how mineral extraction and resource consumption impact the environment.
- 3 Explain how the scientific process is used to evaluate and mitigate potential geologic hazards.

COURSE CONTENT WITH INSTRUCTIONAL HOURS

	Description	Lecture	Lab	Total Hours
1	Formation of Earth and Plate Tectonics <ul style="list-style-type: none"> • Geologic time and Earth history • Plate tectonics • Geologic structures 	9	0	9
2	Earth Systems <ul style="list-style-type: none"> • Earth's systems including the rock cycle, carbon cycle, nitrogen cycle and water cycle • Weather and climate 	9	0	9
3	Geologic Hazards <ul style="list-style-type: none"> • Basic principles of earthquake geology • Earthquakes and related phenomena • Volcanism and volcanic hazards • Streams and flooding • Slope stability, landslides and subsidence • Coastal processes and hazards • Extreme weather events 	13	0	13



COURSE OUTLINE : GEOL 102

D Credit – Degree Applicable

COURSE ID 004023

Cyclical Review: July 2020

4	<p>Resources and Pollution</p> <ul style="list-style-type: none"> • Water resources and pollution • Mineral and rock resources and their exhaustibility • Energy resources • Soils and their management • Human impacts from resource use, population growth, and waste 	13	0	13
5	<p>Global Change and Environmental Management</p> <ul style="list-style-type: none"> • Global climate change • Geology, society and the future • Issues in environmental ethics, economics and law 	10	0	10
				54

OUT OF CLASS ASSIGNMENTS

- 1 creation and analysis of graphs, figures, and data sets (for example: drawing cross-sectional diagrams to show tectonic and/or faulting relationships, triangulating epicenter using seismograms);
- 2 online assignments (for example: practice quizzes, online geologic scavenger hunts, research);
- 3 field trip reports (for example: interpretation of geologic field observations such as landslides, coastal features, or other appropriate settings);
- 4 individual or group projects that create reports or other media (for example: slideshow presentation of mining activities or poster presentation on global climate change)

METHODS OF EVALUATION

- 1 instructor evaluation of participation in class, and participation in group work of anykind;
- 2 evaluation of student work by peers;
- 3 creation and analysis of graphs, figures, and data sets;
- 4 quizzes;
- 5 tests, with at least one midterm exam and one final exam—exams including essay style or short answer questions are strongly encouraged;
- 6 instructor evaluation of student-created reports or other media.

METHODS OF INSTRUCTION

- Lecture



COURSE OUTLINE : GEOL 102

D Credit – Degree Applicable

COURSE ID 004023

Cyclical Review: July 2020

- Laboratory
- Studio
- Discussion
- Multimedia
- Tutorial
- Independent Study
- Collaboratory Learning
- Demonstration
- Field Activities (Trips)
- Guest Speakers
- Presentations

TEXTBOOKS

Title	Type	Publisher	Edition	Medium	Author	IBSN	Date
Environmental Geology	Required	McGraw-Hill	11	print	Montgomery, Carla	978007352	2020
Geology and the Environment	Required	Pearson	7	print	Pipkin, Bernard W.	9781133603986	2014