GEOL 20 Course Outline as of Fall 2019

CATALOG INFORMATION

Dept and Nbr: GEOL 20 Title: NATURAL DISASTERS
Full Title: Natural Disasters
Last Reviewed: 9/24/2018

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	

Catalog Description:
A survey of Earth's processes that have direct, often sudden and violent impacts on societies and civilizations. Discussion will focus on causes, effects and mitigation efforts for hazards such as earthquakes, tsunamis, volcanic eruptions, erosion and landslides, bolide impacts and drought.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 1A or equivalent

Limits on Enrollment:

Schedule of Classes Information:
Description: A survey of Earth's processes that have direct, often sudden and violent impacts on societies and civilizations. Discussion will focus on causes, effects and mitigation efforts for hazards such as earthquakes, tsunamis, volcanic eruptions, erosion and landslides, bolide impacts and drought. (Grade or P/NP)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 1A or equivalent

Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**		Effective:	Inactive:
	C	Natural Sciences	Fall 2015	
CSU GE:	**Transfer Area**		Effective:	Inactive:
	B1	Physical Science	Fall 2015	
IGETC:	**Transfer Area**		Effective:	Inactive:
	5A	Physical Sciences	Fall 2015	

CSU Transfer:	Transferable	Effective:	Fall 2015	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2015	Inactive:

CID:

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Apply scientific techniques to answer questions related to the occurrence of natural hazards.
2. Critically analyze information about hazards to assess cause and effect, susceptibility and risk.
3. Explain the complex interplay between humans and the environment.

Objectives:
At the conclusion of this course, the student should be able to:
1. Explain the nature of geology as a science.
2. Differentiate the main rock types and describe how earth materials influence natural disasters.
3. Relate the concepts of plate tectonics to the occurrence of geologic hazards.
4. Explain the causes, effects, and measurement scales of geologic phenomena such as volcanoes, earthquakes, tsunamis, landslides, and coastal erosion.
5. Interpret the role of science in evaluating, predicting, and mitigating natural disasters.
6. Evaluate the effects of natural hazards on humans, and the changing influence of the human population on these phenomena.

Topics and Scope:

I. Introduction to Science and Geology
   A. The history of geology
   B. The Earth's internal structure
   C. The main rock types and the rock cycle
   D. Plate boundary types: formation and evolution of associated structures
   E. Changes in human population and distribution
II. Earthquakes and Seismology

A. Epicenter location
B. Measurement scales
C. Types of hazards and historic case studies
D. Mitigation efforts

III. Volcanic Processes
A. Types of volcanic eruptions
B. Measurement scales
C. Types of hazards and historic case studies
D. Mitigation efforts

IV. Coastal Processes
A. Sea level change
B. Tsunami
C. Coastal erosion and sedimentary processes
D. Mitigation efforts

V. Mass Wasting
A. Causes/ triggers of landslides
B. Mitigation efforts

VI. Other Natural Phenomena: Descriptions, Causes, Effects, Examples, Scales, and Mitigation Efforts for at Least 2 of the Following Topics:
A. Bolide Impacts
B. Fire
C. Hurricanes
D. Tornadoes
E. Extinction events
F. Flooding
G. Drought

Assignment:

1. Assigned readings (20-30 pages per week)
2. Assignments (5-15): research or reaction papers, essays, written homework, problem solving exercises,
3. Exams (3-5); quizzes (0-15)
4. Class participation: activities, discussions, group work

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Research or reaction papers, essays, written homework problems	Writing 10 - 50%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework activities involving critical thinking, calculations, and assimilation	Problem solving 10 - 30%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Exams and quizzes (Objective questions, short answer, essay questions)	Exams 30 - 80%

Other: Includes any assessment tools that do not logically fit into the above categories.

activities, class participation, discussions, group work, oral presentation	Other Category 0 - 30%

Representative Textbooks and Materials:
Natural Hazards & Disasters. 4th ed. Hyndman, Donald and Hyndman, David. Cengage Learning. 2013
Natural Hazards. 4th ed. Keller, Edward and DeVecchio, Duane. Routledge. 2014
Natural Disasters. 9th ed. Abbott, Patrick. McGraw Hill. 2013
Instructor prepared materials