

### Course Outline

**COURSE:** GEOL 13                      **DIVISION:** 10                      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Fall 2013                      **Inactive Course**

**SHORT TITLE:** ENVIRONMENTAL GEOL

**LONG TITLE:** Environmental Geology

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
3	18	Lecture:	3	54
		Lab:	0	0
		Other:	0	0
		Total:	3	54

#### **COURSE DESCRIPTION:**

The impact of geologic processes on humans, their structures, and environment. Discussion of the causes, effects, and solution of geological problems in rural and urban settings. Topics will include the role of geology in waste disposal and other land use issues. **ADVISORY:** Eligible for English 250 and English 260.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** D - Credit - Degree Applicable

**GRADING MODES**

L - Standard Letter Grade

**REPEATABILITY:** N - Course may not be repeated

**SCHEDULE TYPES:**

02 - Lecture and/or discussion

#### **STUDENT LEARNING OUTCOMES:**

1. Students will describe, compare and contrast geologic processes.

ILO: 2,7,1

Measure: Exam, class discussion, term paper.

2. Students will identify, describe, compare and contrast the chemical, geologic, environmental and economic characteristics of the

basic rock types.

ILO: 2,7,1

Measure: Exam, class discussion, term paper.

3. Students will describe, compare and contrast the features of different types of faults and will be able to locate and identify important fault systems on a map.

ILO: 2,7,1

Measure: Exam, class discussion, term paper.

4. Students will describe, compare and contrast different types of volcanoes and eruptions and describe the specific impacts of each type upon people and structures.

ILO: 2,7,1,4

Measure: Exam, class discussion, term paper.

5. Students will analyze and describe the effect of urbanization upon river dynamics and the potential for flooding.

ILO: 2,7,1,4

Measure: Exam, class discussion, term paper.

6. Students will analyze, identify, describe, compare and contrast the effects of various man-made structures along the ocean coastline.

ILO: 2,7,1,4,5

Measure: Exam, class discussion, term paper.

7. Students will describe the development of soils and their transport.

ILO: 2,7,1

Measure: Exam, class discussion, term paper.

8. Students will analyze, identify, describe, compare, and contrast the mechanisms of landslides and means to prevent them.

ILO: 2,7,1

Measure: Exam, class discussion, term paper.

9. Students will analyze, identify and describe the processes and the social and environmental impacts of oil, gas, and mineral exploration.

ILO: 2,7,1,4

Measure: Exam, class discussion, term paper.

10. Students will analyze, identify, describe, compare and contrast major sources of air, soil and groundwater pollution.

ILO: 2,7,1,4

Measure: Exam, class discussion, term paper.

11. Students will analyze, identify, describe, compare and contrast different types of waste disposal facilities and their social and environmental impact.

ILO: 2,7,1,4

Measure: Exam, class discussion, term paper.

## **CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS**

Inactive Course: 02/25/2013

6 Hours

CONTENT

## Geologic Processes

### STUDENT PERFORMANCE OBJECTIVES

Students will describe, compare and contrast weathering of rocks, erosion, subsurface groundwater, rivers and streams, mountain building, rock formation, aeolian transport.

### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

6 Hours

### CONTENT

#### Rocks and Minerals

### STUDENT PERFORMANCE OBJECTIVES

Students will identify hand, describe, compare and contrast various rocks and minerals that are important in the environment.

### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

6 Hours

### CONTENT

#### Earthquakes and Faults

### STUDENT PERFORMANCE OBJECTIVES

Students will identify, describe, compare and contrast the formation and mechanism of thrust faults, strike-slip faults, normal faults, and reverse faults.

### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

3 Hours

### CONTENT

#### Volcanism

### STUDENT PERFORMANCE OBJECTIVES

Students will describe, compare and contrast different types of volcanoes and eruptions and describe the specific impacts of each type upon people and structures.

### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

3 Hours

### CONTENT

#### The Water Cycle and Groundwater

### STUDENT PERFORMANCE OBJECTIVES

Students will describe, compare and contrast natural and man-made streams and rivers and their potential for flooding. Students will describe methods for controlling flooding. Students will describe the social and environmental effects of surface and subsurface water.

### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

6 Hours

### CONTENT

#### Coastal Processes

### STUDENT PERFORMANCE OBJECTIVES

Students will describe long-shore transport, summer and winter beaches,

and mass transport as it pertains to the coastal zone. Students will identify, describe, compare and contrast seawalls, breakwaters, piers, and other coastal structures designed and built to control the dynamic processes at the land/sea interface. Students will describe the social, economic, and environmental impact of these structures.

#### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

3 Hours

#### CONTENT

Soils and Soil Transport

#### STUDENT PERFORMANCE OBJECTIVES

Students will describe the development of the soil horizon from weathering to erosion to transport to deposition to depletion.

Students will describe the social, economic and environmental impact of this process.

#### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

6 Hours

#### CONTENT

Mining and Energy Resource Recovery

#### STUDENT PERFORMANCE OBJECTIVES

Students will identify, describe, compare and contrast the important social and economic energy resources and the methods by which they are recovered from Earth. Students will describe the costs and benefits of each resource with the effect that each has on the social, economic, and environmental state of various societies.

#### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

6 Hours

#### CONTENT

Waste Disposal

#### STUDENT PERFORMANCE OBJECTIVES

Students will identify "waste". Students will identify, describe, compare and contrast the various methods for waste disposal. Students will describe the role of the geological landscape in the efficacy of various disposal methods. Students will describe the safety, social implications, political implications and economic implications of various waste disposal methods.

#### OUT-OF-CLASS ASSIGNMENTS

Reading and questions from text. Term paper.

6 Hours

#### CONTENT

Pollution

#### STUDENT PERFORMANCE OBJECTIVES

Students will identify, describe, compare and contrast sources of environmental pollution. Students will describe methods for mitigating the effects of these sources and the role of the geological landscape. Students will describe the social and environmental costs of pollution

and the economic benefits to corporations. Students will describe the political issues regarding the costs and benefits.

#### OUT-OF- CLASS ASSIGNMENTS

Reading and questions from text. Term Paper.

3 Hours

Review for Final Exam. Take Final Exam.

Included in content section.

#### **METHODS OF INSTRUCTION:**

Lecture, field trips, group work, projects

#### **METHODS OF EVALUATION:**

The types of writing assignments required:

Written homework

Term papers

The problem-solving assignments required:

Quizzes

Exams

The types of skill demonstrations required:

None

The types of objective examinations used in the course:

None

Other category:

None

The basis for assigning students grades in the course:

Writing assignments: 30% - 50%

Problem-solving demonstrations: 50% - 70%

Skill demonstrations: 0% - 0%

Objective examinations: 0% - 0%

Other methods of evaluation: 0% - 0%

#### **REPRESENTATIVE TEXTBOOKS:**

Carla W. Montgomery; "Environmental Geology", 7th edition; McGraw-Hill Publishers; 2007., or other appropriate college level text.

Reading level of text: 12 grade. Verified by: Russell Lee using MS Word

#### **ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

GAV B1, effective 200670

CSU GE:

CSU B1, effective 200670

IGETC:

IGETC 5A, effective 200670

CSU TRANSFER:

Transferable CSU, effective 201370

UC TRANSFER:

Transferable UC, effective 200670

**SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: A

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department: GEOL

CSU Crosswalk Course Number: 13

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000456092

Sports/Physical Education Course: N

Taxonomy of Program: 191400