



GEOL 110 - Physical Geology Course Outline

Approval Date: 02/13/2019

Effective Date: 06/01/2019

SECTION A

Unique ID Number CCC000264354

Discipline(s) Earth Science

Division Science and Engineering

Subject Area Geology

Subject Code GEOL

Course Number 110

Course Title Physical Geology

TOP Code/SAM Code 1914.00 - Geology/Earth Science, General / E -
Non-Occupational

Rationale for adding this course to the curriculum Add TOP code and update example text.

Units 3

Cross List N/A

Typical Course Weeks 18

Total Instructional Hours

Contact Hours

Lecture 54.00

Lab 0.00

Activity 0.00

Work Experience 0.00

Outside of Class Hours 108.00

Total Contact Hours 54

Total Student Hours 162

Open Entry/Open Exit No

Maximum Enrollment 56

Grading Option Letter Grade or P/NP

Distance Education Mode of Instruction On-Campus
Hybrid

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Description Uses of geology in society; the nature of rocks and minerals; the dynamic nature of our planet is explored, including mountain building processes, volcanoes, faulting; plate tectonics; earthquakes; geologic time and surface land forming processes.

Schedule Description

SECTION D

Condition on Enrollment

1a. **Prerequisite(s):** *None*

1b. **Corequisite(s):** *None*

1c. **Recommended:** *None*

1d. **Limitation on Enrollment:** *None*

SECTION E

Course Outline Information

1. Student Learning Outcomes:

- A. The student will be able to identify geological materials and features of the earth.
- B. The student will be able to explain how geologic features are formed by geologic processes.
- C. The student will be able to identify and evaluate the impacts of geologic processes on society, with an emphasis on geologic natural hazards, land-use planning, and global climate.

2. Course Objectives: Upon completion of this course, the student will be able to:

- A. Explain the scientific method.
- B. Demonstrate a conceptual understanding of fundamental concepts, principles, and interactions of Earth's systems applicable to the Geological Sciences.
- C. Apply understanding of the internal and external processes that shape and form the Earth.
- D. Demonstrate an understanding of the rock cycle and identify and describe the basic properties of rocks and minerals.
- E. Demonstrate an understanding of plate tectonics and Earth's resources.
- F. Demonstrate an understanding of how geological environments are formed, changed and eroded through geologic time.
- G. Communicate complex course concepts effectively in writing and diagrams and apply critical thinking and problem solving skills to make informed decisions in life.
- H.

3. Course Content

- A. Introduction to Geology
 - a. The Scientific Method
 - b. History of Geology
- B. Earth Materials
 - a. Minerals
 - b. Igneous, Sedimentary and Metamorphic Rocks

- c. Soils
- C. Geologic Time and Earth History
 - a. Geologic time
 - b. Relative and Absolute Dating
 - c. Fossils and Fossilization
- D. Earth's Internal Forces
 - a. Plate Tectonics
 - b. Earthquakes
 - c. Vulcanism and Igneous Rocks
 - d. Mountain Building
 - e. Geological Structures
 - f. Metamorphism and Metamorphic Rocks
- E. Earth's External Processes
 - a. Weathering, Mass Wasting and Erosion
 - b. Sediment and Sedimentary Rocks
 - c. Surface Water Processes
 - d. Groundwater Processes
 - e. Oceans and Coastal Processes
 - f. Desert Processes
 - g. Glacial Processes
- F. Earth Resources
 - a. Renewable and Non-Renewable Resources
 - b. Metallogenic Provinces
 - c.

4. Methods of Instruction:

Field Trips:

Lecture:

5. Methods of Evaluation: Describe the general types of evaluations for this course and provide at least two, specific examples.

Typical classroom assessment techniques

- Exams/Tests --
- Quizzes --
- Research Projects --
- Field Trips --
- Home Work --
- Final Exam --
- Mid Term --

Additional assessment information:

Lecture Exams: Three plus a comprehensive Final Exam. Lecture examinations will consist of objective questions in a variety of formats including short answer, multiple choice and essay questions. Typical topics will include the Rock Cycle, the theory of Plate Tectonics and the age of the Earth.

Occasional lecture and lab quizzes: Quizzes are short examinations covering both lecture material and homework exercises.

One or more field trips will be assigned. Field trip location examples would be Pt. Reyes and Mt. Diablo.

Homework assignments: These assignments include the solving of specific gravity problems

and questions about Moh's scale of hardness.

Research assignments: These assignments include more in depth study and presentation. A typical topic would be the earthquake history of southern California or the history and development of plate tectonic theory.

Letter Grade or P/NP

6. Assignments: State the general types of assignments for this course under the following categories and provide at least two specific examples for each section.

A. Reading Assignments

Reading Assignments: Selected readings from the required textbook and laboratory manual. For example:

1. Read Chapter 3, Matter and Minerals, covering the origin of minerals and rocks on planet earth.
2. Read Exercise 3, Mineral Properties, and summarize the procedures for mineral testing.

B. Writing Assignments

Writing Assignments: Writing assignments will be graded on scientific accuracy, organization and correct use of English grammar and spelling. For Example:

1. Earthquake problem set.
2. Flood Hazard problem set.

C. Other Assignments

D.

7. Required Materials

A. EXAMPLES of typical college-level textbooks (for degree-applicable courses) or other print materials.

Book #1:

Author: Tarbuck, E. J. and Lutgens, F. K.

Title: Earth

Publisher: Pearson

Date of Publication: 2012

Edition: 11

Manual #1:

Author: Tarbuck, E.J., Lutgens, F.K, Tasa, D.G.

Title: Earth: An Introduction to Physical Geology

Publisher: Pearson

Date of Publication: 01-17-2016

B. Other required materials/supplies.