

GEOG 20: INTRODUCTION TO EARTH SCIENCE

Foothill College Course Outline of Record

| Heading | Value |
|------------------------------------|---|
| Units: | 4 |
| Hours: | 4 lecture per week (48 total per quarter) |
| Advisory: | One of the following: ENGL 1A, 1AH, or 1S & 1T. |
| Degree & Credit Status: | Degree-Applicable Credit Course |
| Foothill GE: | Non-GE |
| Transferable: | CSU/UC |
| Grade Type: | Letter Grade (Request for Pass/No Pass) |
| Repeatability: | Not Repeatable |

Student Learning Outcomes

- Discuss the earth's atmosphere and how human actions have affected the earth's climate.
- Identify and explain major earth systems processes such as the structure of the solar system, the physical structure and age of the earth, the rock cycle, the water cycle, weathering processes and the oceans.
- Apply the scientific method to examine a basic earth science process.

Description

An introduction to the essentials of Earth science, including the structure of the earth and its internal processes, the atmosphere, the hydrosphere, and solar system. This course focuses on the interactions between physical and chemical systems of the Earth, such as the plate tectonics, the rock cycle, the hydrologic cycle, weather and climate. Topics are aligned with the California State Science Standards for K-12 and will prepare pre-service teachers to teach these subjects.

Course Objectives

The student will be able to:

- Describe the structure of the solar system
- Diagram and explain the structure of the Earth
- Apply the scientific method to solve a basic earth science problem
- Discuss how the Earth's internal forces result in various surface features observed on a map or image
- Explain how the rock cycle results in the various types of rocks and minerals observed on the Earth
- Identify properties of igneous, sedimentary and metamorphic rocks
- Relate igneous, sedimentary and metamorphic rocks to the type of environments in which they are formed
- Discuss the age of the Earth and the rate of various geologic processes
- Diagram the water cycle and identify how humans have influenced it
- Identify evidence of glacial weathering
- Describe the surface features associated with dry environments
- Explain the composition of the atmosphere and human influences upon it
- Discuss how atmospheric circulation results in various climate patterns and weather phenomena

- Relate human actions to climate change
- Explain tides, currents and circulation within the Earth's oceans

Course Content

- Fundamentals of Earth science
 - The solar system
 - Size
 - The sun
 - Terrestrial planets
 - Jovian planets
 - Structure of the Earth
 - Core
 - Mantle
 - Crust
 - The scientific method as a framework to explore Earth science
- Earth's internal forces
 - Plate tectonics
 - Orogenesis
 - Volcanoes
 - Earthquakes
 - Folds and faults
- Earth materials
 - Minerals
 - The rock cycle
 - Igneous
 - Sedimentary
 - Fossils and fossilization
 - Metamorphic
 - Geologic time
 - Age of the Earth
 - Dating methods
 - Relative
 - Radiometric
- Surface processes
 - The water cycle
 - Water resources
 - Glacial weathering
 - Dry environments
- The atmosphere
 - Composition
 - Circulation in the atmosphere
 - Weather patterns
 - Climate patterns
 - Extreme weather
 - Cyclones
 - Floods
 - Drought
 - Climate change
 - Oceans
 - Tides
 - Currents
 - Shorelines

Lab Content

Not applicable.

Special Facilities and/or Equipment

Maps and example mineral kits. When taught as an online distance learning section, students and faculty need ongoing and continuous internet and email access.

Method(s) of Evaluation

- A. Midterm exam
- B. Comprehensive final exam
- C. Paper or projects focusing on two or more elements of the course content

Method(s) of Instruction

- A. Lecture
- B. Discussion
- C. Cooperative learning exercises

Representative Text(s) and Other Materials

Tarback, Edward J., and Fredrick K. Lutgens. Earth Science. Pearson, 2015.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Weekly reading assignments from the textbook and objective quizzes
- B. Comprehensive midterm and final examinations
- C. Written assessments that determine student's mastery of course learning outcomes (SLOs)

Discipline(s)

Earth Science