



EART 110 - Earth Science Course Outline

Approval Date: 06/12/2015

Effective Date: 01/15/2016

SECTION A

Unique ID Number CCC000250821

Discipline(s) Earth Science

Division Science and Engineering

Subject Area Earth Science

Subject Code EART

Course Number 110

Course Title Earth Science

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

Rationale for adding this course to the curriculum Modification needed for C-ID review

Units 4

Cross List N/A

Typical Course Weeks 18

Total Instructional Hours

Contact Hours

Lecture 54.00

Lab 54.00

Activity 0.00

Work Experience 0.00

Outside of Class Hours 108.00

Total Contact Hours 108

Total Student Hours 216

Open Entry/Open Exit No

Maximum Enrollment 24

Grading Option Letter Grade or P/NP

Distance Education Mode of Instruction Hybrid

SECTION B

General Education Information:

SECTION C

Course Description

Repeatability May be repeated 0 times

Catalog Description An introduction to the essentials of Earth Science with a laboratory. Topics include the geosphere, atmosphere, hydrosphere, and solar system. The focus is on the interactions between physical and chemical systems of the Earth such as the tectonic cycle, rock cycle, hydrologic cycle, weather and climate.

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. Identify geological material and features of the earth.
- B. Explain how geological features are formed by physical processes.
- C. Define, explain and describe elements and controls of weather and climate and their effect on humans.

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

- A. Demonstrate a fundamental understanding of concepts, principles and interactions of Earth's systems including: Hydrologic Cycle, Rock Cycle, Plate Tectonics Cycle, Solar System, Geologic Time, Weather and Climate.
- B. Be able to explain basic properties of minerals and rocks.
- C. Explain the processes that shape the Earth and how they change over geologic time.
- D. Explain the Scientific Method.
- E. Communicate complex course concepts effectively in writing and diagrams.
- F. Explain geologic time through evidence of fossils, minerals, and rocks.
- G. Understand Earth's External Processes: landscape formation and features as a result of water, wind, glaciers.
- H. Understand Earth's internal processes: plate tectonics, geologic structures, mountain building, earthquakes and volcanoes.
- I. Explain oceanographic processes and the influence on the Earth's surface.
- J. Explain the major effect the atmosphere has on Earth processes and why it is a large part of Earth's radiation protection.
- K. Explain how basic astronomical relationships within the solar system affects the Earth.
- L.

3. Course Content

- A. Studying Earth Science
 - a. What is Earth Science
 - b. Introduction to the Scientific Method
- B. Earth's Internal Forces

- a. Plate Tectonics
- b. Geologic Structures
- c. Mountain Building
- d. Earthquakes
- e. Volcanoes
- C. Earth's Materials
 - a. Minerals
 - b. Igneous, Sedimentary and Metamorphic Rocks
 - c. Soils
- D. Earth History
 - a. Geologic Time
 - b. Relative and Absolute dating
 - c. Fossils and Fossilization
- E. Earth's External Processes
 - a. Surface Water and Groundwater
 - b. Glaciers
 - c. Deserts
- F. Oceanography
 - a. Ocean Currents
 - b. Tides
 - c. Shorelines
- G. Atmosphere
 - a. Composition of the Atmosphere
 - b. Seasons
 - c. Atmospheric Moisture
 - d. Weather Patterns and Severe Weather
 - e. Climate
- H. Astronomy
 - a. The Solar System
 - b. Stars and Stellar Evolution
 - c. Interstellar Matter
 - d. Formation of the Universe
- I. Laboratory Activities
 - a. The Scientific Method
 - b. Plate Tectonics, Earthquakes and Volcanoes
 - c. Faults and Folds
 - d. Mineral Properties and Identification
 - e. Rock Properties and Identification
 - f. Groundwater and Subsidence
 - g. Surface Properties
 - h. Astronomy
 - i. Relative and Absolute Dating and Geologic Time
 - j. Oceans
 - k. Fossil Properties and Identification
 - l. Weather Systems and Atmospheric Moisture
 - m. Field Trips
 - n.

4. Methods of Instruction:

Distance Education: Assigned questions from reading materials.

Field Trips: Field trips to local museums and geologic features.

Lab: Demonstrations and assigned student activities.

Lecture: Lecture covering assigned chapters.

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 --

Lab Activities --

Final Exam --

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.

There will be 3 Lab Practical Exams: Lab Practical Exams involve identifying rocks and minerals and the demonstration of basic laboratory methods.

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

Formal written lab reports: Students will keep an organized lab notebook of their observations of the exercises performed in the laboratory.

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 Mohs scale of hardness.

Research Project: These are semester long projects and include such topics as the history of earthquakes in southern California or the origin of volcanism in the central Sierra.

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

Weekly reading of text chapters assigned in lecture and weekly reading of lab exercises in the lab manual. Students are also directed to specific internet sites to review the most recent occurrences of earth science related news events. Examples of internet sites include: the United States Geological Society and the Geological Society of America. Current events in the earth sciences never fail to stimulate critical thinking and scientific analysis.

B. Writing Assignments

Weekly analysis and assessment of lab exercises is done for each class. This includes math calculations, statistical analysis and topographic map interpretation. The finished

reports would analyze stream deposits and compare and contrast the topographic expressions of different classes of volcanoes.

C. Other Assignments

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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 Science

Publisher: Pearson

Date of Publication: 2014

Edition: 14th

Manual #1:

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

Title: Applications and Investigations in Earth Science

Publisher: Pearson

Date of Publication: 03-01-2014

B. Other required materials/supplies.