C-ID Descriptor
Physical Geology with Lab

Descriptor Details

- **Descriptor Title**: Physical Geology with Lab
- **C-ID Number**: 101
- **Units**: 4.0
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General Description

An introduction to the principles of geology with emphasis on Earth processes. This course focuses on the internal structure and origin of the Earth and the processes that change and shape it. The laboratory component focuses on the identification of rocks and minerals, topographic and geologic map exercises demonstrating the work of water, wind, ice and gravity and effects of tectonic activity.

Prerequisites

No information provided

Corequisites

No information provided

Advisories

No information provided

Content

Physical Geology C-ID Geology 100 Course Content

The Physical Geology course must address all of the major categories listed below and at least 75% of the subtopics.

Introduction to Geology

- The Scientific Method
- History of Geology

Earth Materials

- Minerals
- Igneous, Sedimentary and Metamorphic Rocks
- Soils
- Renewable and Non-Renewable Resources
- Metallogenic Provinces

Geologic Time and Earth History

- Geologic Time
- Relative and Absolute Dating
- Fossils and Fossilization

Earth’s Internal Forces

- Plate Tectonics
- Earthquakes
- Volcanism and Igneous Rocks
- Mountain Building
- Geological Structures
- Metamorphism and Metamorphic Rocks

Earth’s External Processes

- Weathering, Mass Wasting and Erosion
- Sediment and Sedimentary Rocks
- Surface Water Processes
- Groundwater Processes
- Oceans and Coastal Processes
- Desert Processes
- Glacial Processes

Additional

- Optional Field Trip

Lab Activities

Physical Geology C-ID Geology 100L Laboratory Activities:

Physical Geology Laboratory C-ID Geology 100L

Laboratory Activities: (must include at least 10 of the following activity topics)

1. Topographic maps
2. Mineral identification
3. Relative and absolute dating
4. Geologic time
5. Plate Tectonics
6. Earthquakes
7. Volcanoes
8. Rock identification
9. Geological structures
10. Geological maps and cross sections
11. Surface water processes
12. Ground water processes
13. Coastal processes
14. Desert processes
15. Glacial processes
16. Field Trips

Objectives

At the conclusion of this course, the student should be able to:

1. Explain and practically apply the principles of the scientific method
2. Demonstrate a conceptual understanding of fundamental concepts, principles, and interactions of Earth's systems applicable to the geological sciences
3. Demonstrate an understanding of plate tectonics and the Earth's resources
4. Apply understanding of the internal and external processes that shape and form the Earth

5. Demonstrate an understanding of the rock cycle and identify and describe the basic properties of rocks and minerals
6. Demonstrate an understanding of the Earth through the identification and evaluation of physical mineral samples.
7. Demonstrate an understanding of the Earth through the identification and evaluation of physical igneous, sedimentary and metamorphic rock samples.
8. Demonstrate an understanding of how geological environments are formed, changed and eroded through time
9. Demonstrate an ability to communicate complex course concepts effectively in writing and diagrams and apply critical thinking and problem solving skills to make informed decisions in life
10. Demonstrate the ability to read and interpret topographic and geologic maps and answer questions pertaining to geologic processes.

Evaluation Methods

Shall include multiple measures of performance that may include, but are not limited to:

- Quizzes
- Exams
- Written assignments
- Research assignments
- Lab reports and activities
- Field trip reports

Textbooks

Earth: An Introduction to Physical Geology (Prentice Hall – Tarbuck, Lutgens, Tasa)

Essentials of Geology (Prentice Hall – Lutgens, Tarbuck, Tasa)

Essentials of Geology (WW Norton – Marshak)

Exploring Geology (McGraw-Hill – Reynolds, Johnson, Kelly, Moran, Carter)

Physical Geology (McGraw-Hill – Plummer and Carlson)

Visualizing Geology (Wiley - Murck, Skinner and MacKenzie)

Lab Manuals:

AGI & NAGT Laboratory Manuel in Physical Geology (Prentice-Hall – Busch ed.)