

# ENV 111 - PHYSICAL GEOLOGY

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## Course Description

This course explores processes which transform planet Earth. Landforms, minerals, rocks, and geologic structures are examined in classroom, laboratory, and field studies, which focus on these geologic processes, and on the techniques of geology. Lab studies apply the methodology and techniques of geology by introduction of map reading, field and map study, study of surficial processes, and study of minerals and rocks.

Group 1 lab course.

## Credit Hours

4

## Contact Hours

5

## Lecture Hours

3

## Required Prerequisites

MTH 100 or equivalent

## Corequisites

ENV 111L

## Recommended Prerequisites or Skills Competencies

ENG 111

## General Education Outcomes supported by this course

Quantitative Reasoning

## Course Learning Outcomes

### Knowledge:

- Be able to identify and describe the physical and chemical properties of the most common minerals, igneous, sedimentary, and metamorphic rocks.
- Explain the origins and geologic processes responsible for surface features and environments associated with streams, glaciers, coasts, etc.
- Explain tectonic processes responsible for the origin of continents, oceans, earthquakes, volcanoes, and mountain systems.

### Application:

- Analyze the physical properties of unknown rocks and minerals to determine their identification.
- Analyze maps to determine the origin of landforms.
- Analyze 3 dimensional rock structures to determine the origin.
- Analyze digital images of the Earth's surface to describe the existing plate boundaries.
- Calculate the rate and direction of plate motion.
- Determine the timing of geologic events and features, by applying uniformitarianism, relative dating methods, and numerical (radiometric) dating methods.

### Integration:

- Describe how rock and mineral resources are used in the real world to make a wide range of products.
- Evaluate the economic value of local and statewide mining operations.
- Connect geologic processes with the occurrence and distribution of rock and mineral resources.

### Human Dimension:

- Work collaboratively in lab situations to determine the characteristics of geologic materials.
- See themselves as geologists.

### Caring - Civic Learning:

- Explain how management of soil, mineral, and rock resources impact local and global environments and economies.

### Learning How to Learn:

- Use internet resources to obtain information regarding geologic materials and current geologic events.