

[See this page in the course material.](#)



The content, assignments, and assessments for Geology are aligned to the following learning outcomes. A full list of course learning outcomes can be viewed here: [Geology Learning Outcomes](#).

## **Module 1: Science of Geology**

**Define geology as a science and identify methods used in its study.**

- Define the science of geology.
- Identify and use scientific processes and the scientific methods as used by geologists and with other related scientific disciplines.
- List tools and concepts commonly used by geologists.

## **Module 2: Rocks and the Rock Cycle**

**Identify and compare common rock forming minerals, mineral structures and mineral properties.**

- Describe the basic chemistry involved in mineral formation and structures.
- Identify and classify common rock forming minerals.
- Identify the most common elements in the Earth's crust and their order of abundance.

## **Module 3: Rocks and the Rock Cycle**

**Identify processes of the rock cycle and the different rock types associated with each step.**

- Identify igneous rocks and the steps of the rock cycle related to their formation.

- Identify sedimentary rocks and the steps of the rock cycle related to their formation.
- Identify metamorphic rocks and the steps of the rock cycle related to their formation.

## **Module 4: Weathering and Soil Formation**

**Explain the formation of soils, different weathering processes and erosion.**

- Describe types and processes of weathering and erosion.
- Describe and compare typical soil profiles and basic soil types
- Discuss the importance of soil conservation.

## **Module 5: Plate Tectonics**

**Recognize the ongoing development of, evidence for, and large scale planetary effects of the Theory of Plate Tectonics.**

- Describe Continental Drift including supporting evidence.
- Critique and interpret major types of evidence supporting the Theory of Plate Tectonics.
- Describe different geological processes in relation to plate tectonics.

## **Module 6: Earth's Interior**

**Describe the Earth including the characteristics of the various layers; learn the implications of the different layers.**

- Analyze and compare the properties, material, and layers within the Earth's geosphere.
- Understand how we know about the Earth's interior and its magnetism.

## **Module 7: Crustal Deformation**

**Correlate structural geology as it pertains to crustal deformation.**

- Compare and contrast stress versus strain in the Earth's crust.
- Identify geologic structures created by deformation.

## **Module 8: Earthquakes**

**Interpret types, causes, effects, and scientific measurements of**

## **earthquakes and seismic waves.**

- Investigate the causes and common locations of earthquakes.
- Compare and contrast properties and mechanics of different types of waves.
- Define and compare magnitude versus intensity.
- Understand the hazards of earthquakes and recognize our limited ability to predict seismic activity.

## **Module 9: Volcanoes**

**Explain the origin of volcanic features and landforms; as well as the causes and hazards associated with volcanic activity.**

- Describe and compare different volcano types.
- Describe the processes that form volcanoes.
- Classify and identify igneous features.
- Describe major volcanic hazards and their potential effects.
- Identify the various methods used to monitor volcanic activity.

## **Module 10: Mass Movement**

**Define and interpret the causes, types, effects and hazards of mass movement and land subsidence.**

- Identify and describe types of mass movement.
- Identify the various causes of mass movement, as well as ways to diminish the damage caused. 1

## **Module 11: Hydrology**

**Understand the roles, processes and effects of streams and groundwater.**

- Describe and model processes involved throughout Earth's hydrologic cycle.
- Identify and describe channel types and sedimentary loads formed and carried by rivers and streams.
- Describe critical components of groundwater.
- Identify various geologic features associated with groundwater.
- Recognize features associated with oceans and shorelines.

## Module 12: Geological Resources

**Identify common geological resources and discuss how people use them.**

- Learn common processes of geologic formation of rock and mineral resources.
- Describe some of the extraction methods and identify different types of mining.
- Describe geologic materials as current or potential energy resources and categorize sources as renewable or nonrenewable.

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