

# GEOSCIENCES, B.S.

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**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## Program Description

The geosciences are concerned with understanding Earth processes and the evolutionary history of the Earth. Geoscientists work to discover and develop natural resources such as groundwater, metals, and energy sources; to solve technology-generated environmental problems such as acid mine drainage and waste disposal; to predict geological events, such as the occurrence of earthquakes and volcanism; and to solve fundamental questions concerning the origin and evolution of Earth and life. Our degree programs stress data collection; investigation, analysis, and synthesis of information related to complex natural problems; and rigor of thought and clarity of oral and written expression. The B.S. provides a broad foundation in the physical and natural sciences for students who seek immediate employment or post-graduate education in several areas of the geosciences. Examples of careers include the petroleum and mining industries; local or federal resource management; water resources, treatment and management; energy and environmental industries; and academia. A senior thesis involving independent research is required of all students.

## General Option

This option is designed to provide sufficient flexibility so that the student has the opportunity to prepare for graduate school by focusing on specialized areas in the geosciences. The option's flexibility also permits students to develop a broad background in the geosciences in preparation for postgraduate majors that require breadth, such as environmental law.

## Hydrogeology Option

This option helps prepare the student for entry-level positions in environmental agencies and firms where a specialized knowledge of groundwater and related areas is required. The option is also appropriate for students wishing to pursue an advanced degree in the area of hydrogeology.

## What is Geosciences?

Geoscientists want to know more about the big picture of Earth and why it exists the way it does today. They investigate natural disasters such as earthquakes and volcanoes, they explore life in extreme environments such as hydrothermal vents or in far-removed caves, and they examine processes such as water treatment and carbon cycling. This work involves understanding how geology, chemistry, physics, and biology intersect, both today and throughout the Earth's history. Geoscientists piece together a picture of both Earth's past environments and life throughout time. This work can involve field work, laboratory work, or a combination. Ultimately, geoscientists seek to understand how our Earth developed into the way it is today, which can help us understand what we can expect in the Earth's future.

## You Might Like This Program If...

- You are fascinated by volcanoes, earthquakes, rocks, glaciers, climate change, fossils, tectonic plates, or the evolution of life.
- You like big picture thinking and want to explore Earth's developmental processes.

- You like applying basic science skills to explore the natural world.
- You enjoy working in nature or a laboratory (not all geosciences is outdoors!).
- You are analytical and like to piece together clues to paint a picture of the planet's past.