

GEOBIOLOGY, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

Geobiology is the interdisciplinary study of the Earth and its biosphere. It embraces the history of life and its interactions with the Earth over geologic time; it also includes study of interactions between living organisms and physical and chemical processes in the modern environment on Earth, and possibly elsewhere in the universe. Thus, geobiology encompasses the fields of paleobiology and paleontology, biogeochemistry, geomicrobiology, and astrobiology. The degree program provides students with a strong background in general science and especially in geosciences and biology, with core selections from both disciplines. Students gain practical field experience in the study of the physical environment and ecological properties. The senior thesis provides students with hands-on research experience, as well as an emphasis on data synthesis and the written expression of scientific observations and ideas. Students will be well prepared for advanced studies in this emerging discipline, and for careers in the environmental sciences. Geobiology is critical to the study of environmental quality, global change, and environmental-human health interactions, all of which have profound importance in legal, economic, and policy arenas.

What is Geobiology?

Geobiology is the study of the interactions that occur between the biosphere (living organisms and their products) and the geosphere (solid part of the Earth). Geobiologists apply the principles and tools of biology to study the Earth and construct a picture of life through time. Geobiologists search for clues of how changes to the Earth in the past, such as periods of increased carbon dioxide or decreased temperature, have affected life on Earth and vice versa. By studying key aspects of the environment, geobiologists seek an understanding of how stressors affect entire populations, evolution, and extinctions. The study can involve field work such as collecting fossils or organic matter, or it can involve laboratory work using cutting-edge analytical instrumentation. By building a more detailed picture of how environmental changes affect life, geobiologists can help understand how predicted future environmental changes might impact life on Earth.

You Might Like This Program If...

- You want to understand the complexity of environmental factors that led to the origin and evolution of life on Earth and contributed to past mass extinctions.
- You like to do field work outdoors, such as searching for fossils.
- You are analytical and like to piece together clues to paint a picture of past life.
- You like thinking about the big picture of evolution within Earth's geologic constraints.