

# MICROBIOLOGY, B.S.

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**Begin Campus:** Any Penn State Campus

**End Campus:** University Park

## Program Description

Microbiology is the science of single cell forms of life and of the response of more complex life forms to their presence and activities. Students in the Microbiology major will complete a comprehensive study of life processes at the molecular and cellular level, with particular emphasis on prokaryotes (bacteria), and use basic and advanced techniques in laboratory methodology.

Through advanced course study, the many subdisciplines of microbiology such as molecular genetics, immunology, and virology may be explored more fully. Ample opportunities exist for participation in faculty-initiated research projects. Extensive laboratory experience is a particular strength of the major. Courses in such applied areas as industrial, medical, and food microbiology help prepare students for careers in the pharmaceutical, biotechnical, and agricultural industries.

## General Microbiology Option

The General Microbiology Option allows students to tailor their major toward specific areas of expertise, such as environmental microbiology, microbial pathology of plants, microbiomes, etc. This is achieved through the flexibility of an expanded list of electives that includes courses dealing with various aspects of microbiology.

## Medical Microbiology Option

The Medical Microbiology Option is useful for students who desire careers in the human health sector. This option includes courses such as Viral Pathogenesis, Medical Microbiology and Immunology.

## What is Microbiology?

Microbiology is the study of microscopic organisms and how they interact with other organisms and the environment. Topics in microbiology include how microbes benefit and harm human health, the role of microbes in the environment, and how microbes can be used in medicine, agriculture, and engineering.

## You Might Like This Program If...

- You like learning by doing experiments.
- You are fascinated by the diversity and interconnectedness of life.
- You are interested in learning about the interplay between infectious disease and the immune response.
- You want to pursue a career in genetic engineering, medicine, public health, or environmental studies.