College of the Environment, Forestry, and Natural Sciences 2020-2021

Department of Biological Sciences

Microbiology, Bachelor of Science

Ever since Van Leeuwenhoek described the “cavorting wee beasties” seen through his simple 1670s-style microscope, scientists have been fascinated by tiny life forms. This degree allows students to join those who explore the world of bacteria, viruses, mitochondria, neurons, and genetic material. A strong core of biology and chemistry anchors the program, which offers flexibility through a generous selection of approved electives.

Careers

University Requirements

To receive a bachelor's degree at Northern Arizona University, you must complete at least 120 units of credit that minimally includes a major, the liberal studies requirements, and university requirements as listed below.

- All of Northern Arizona University's liberal studies, diversity, junior-level writing, and capstone requirements.
- All requirements for your specific academic plan(s).
- At least 30 units of upper-division courses, which may include transfer work.
- At least 30 units of coursework taken through Northern Arizona University, of which at least 18 must be upper-division courses (300-level or above). This requirement is not met by credit-by-exam, retro-credits, transfer coursework, etc.
- A cumulative grade point average of at least 2.0 on all work attempted at Northern Arizona University.

The full policy can be viewed here.

Overview

In addition to University Requirements:

At least 71 units of major requirements

Up to 9 units of major prefix courses may be used to satisfy Liberal Studies requirements; these same courses may also be used to satisfy major requirements

The Bachelor of Science degree in Microbiology consists of a series of Life Science foundation courses followed by advanced courses that survey a range of microbiological sub-disciplines. These include courses focused on the interaction between microorganisms and human disease, such as infectious diseases, medical microbiology, and immunology but also courses that investigate the role of microbes in the environment including environmental microbiology, microbial ecology and industrial microbiology and biotechnology. From bioremediation to virology, students will develop an understanding of biological and chemical systems of microorganisms — a

experience); specifically, students will draw from their learning experiences in the fields of microbial ecology & evolution, microbial physiology, bioremediation, immunology, etc., as related to the topic of their capstone course
Students will gain familiarity with the unique role of microbes play in genetic modification technologies (i.e., creation of GMOs, industrial applications, gene therapy, etc.)
Students will gain familiarity with the role of microbes in human disease, the role of microbes in issues of international health, and the human immune response to microbial infection
Students will gain familiarity with the role of microbes in the context of ecosystem function (e.g., microbial ecology, microbiome, etc.)

Details

Major Requirements

Take at least 71 units including 40 units of Biology and Biology-related coursework with a Grade of "C" or better:

- BIO 181, BIO 181L, BIO 182, BIO 182L (8 units)

Select one of the following which meets the junior-level writing requirement (3-5 units):

- BIO 205, BIO 205L, BIO 305W, (5 units)
- BIO 365W (3 units)

(Note: The Department of Biological Sciences is phasing out the five unit BIO 205 and BIO 205L and BIO 305W option, and transitioning to the BIO 365W option.

Select additional coursework from:

- BIO 240, BIO 344, BIO 346 9 1 and Tf1

- ENV 360, ENV 385W
- FOR 213, FOR 340
- GLG 309, GLG 451
- NTS 356