



MICROBIOLOGY

Academics

When you major in microbiology you will study a fundamental biological science concerned with microscopic organisms such as bacteria, fungi, viruses and other microbes. If you pick up a handful of garden soil you will be holding thousands, possibly millions, of different kinds of microbes. These have a daily effect on human and animal health and our environment and are directly related to issues such as food safety, infectious diseases, biofuels and bioenergy, environmental biology and bioterrorism.

Beyond your core coursework of biology, chemistry, physics and mathematics, dive deep into one of four specific areas:

- Applied and Environmental Microbiology
- Biotechnology and Industrial Microbiology
- Clinical and Veterinary Microbiology
- Food Microbiology

Opportunities

Some of the most important scientific discoveries have been made by microbiologists. Microbiologists can be found working in a variety of settings, from traditional laboratory to fields and streams. A bachelor of science degree in microbiology prepares you for a wide range of important careers in health care, environmental, biofuels and bioenergy, forensic science, education, government or private industry labs, the food industry and many more. Here are examples of recent graduates' employment:

- Biomedical Technician / *BIOTEST PHARMACEUTICALS*
- Chemist / *ARCHER DANIELS MIDLAND*
- Graduate Student / *STANFORD UNIVERSITY*
- Laboratory Technician / *POET RESEARCH CENTER, INC*
- Medical Student / *UNIVERSITY OF NEBRASKA MEDICAL CENTER*
- Process Engineer / *NOVOZYMES*
- Process Technologist / *E. & J. GALLO WINERY*
- Research Assistant / *HARVARD UNIVERSITY*
- Science Writer / *LI-COR BIOSCIENCES*
- Scientist / *EUROFINS SCIENTIFIC*

Experience

In the College of Arts and Sciences, we know experience is valuable and goes beyond the classroom. We strive to help you connect your academics with research, internships, education abroad, service learning and leadership experiences. Take advantage of opportunities in microbiology such as:

- Studying abroad in Botswana, Africa
- Serving as a Microbiology Club officer
- Conducting research with one of 40+ microbiologists
- Interning with the research and development department at businesses such as Estée Lauder
- Volunteering with the American Cancer Society



MBIO—SAMPLE 4-YEAR PLAN*

ACE = Achievement-Centered Education CDR = College Distribution Requirements

FIRST SEMESTER

MBIO 101: Introduction to the Microbiology Major	1
CHEM 109A / 109L: General Chemistry I with Lab (ACE 4)	4
MATH 106: Calculus I (ACE 3)	5
Written Texts / Research & Knowledge Skills (ACE 1)	3
CDR: Language	3
Total Hours	16

THIRD SEMESTER

LIFE 121 / 121L: Fundamentals of Biology II with Lab	4
CHEM 251, 253: Organic Chemistry I with Lab	4
Communication Skills (ACE 2)	3
Humanities (ACE 5)	3
Total Hours	14

FIFTH SEMESTER

STAT 218: Introduction to Statistics	3
BIOC 431: Structure & Metabolism	3
PHYS 141: Elementary General Physics I	5
Social Sciences (ACE 6)	3
Elective / Minor / Secondary Major / Science / Pre-Professional	1
Total Hours	15

SEVENTH SEMESTER

MBIO 440: Microbial Physiology	3
MBIO 443: Immunology	3
Microbiology Elective Course	3
CDR: Social Science	3
Elective / Minor / Secondary Major / Science / Pre-Professional	3
Total Hours	15

SECOND SEMESTER

CHEM 110A / 110L: General Chemistry II with Lab	4
LIFE 120 / 120L: Fundamentals of Biology I with Lab (CDR)	4
CDR: Written Communication	3
CDR: Language	3
Elective / Minor / Secondary Major / Science / Pre-Professional	1
Total Hours	15

FOURTH SEMESTER

BIOS 206: General Genetics	4
CHEM 252: Organic Chemistry II	3
BIOS 312: Microbiology	3
BIOS 313: Molecular Microbiology Lab or BIOS 314: Microbiology Lab	2
CDR: Human Diversity in U.S. Communities	3
Total Hours	15

SIXTH SEMESTER

PHYS 142: Elementary General Physics II	5
Microbiology Elective Course	3
Ethics / Civics / Stewardship (ACE 8)	3
Global Awareness & Human Diversity (ACE 9)	3
Elective / Minor / Secondary Major / Science / Pre-Professional	1
Total Hours	15

EIGHTH SEMESTER

MBIO 420: Molecular Genetics	3
Microbiology Elective Course	3
Microbiology Elective Course	3
Fine Arts (ACE 7)	3
Elective / Minor / Secondary Major / Science / Pre-Professional	3
Total Hours	15

*DISCLAIMER: This document represents a sample 4-year plan for degree completion with a major of interest in the College of Arts and Sciences. Actual course selection and sequence may vary and should be discussed individually with an academic advisor at the college and department level.