MICROBIOLOGY MINOR

Offered at: San Luis Obispo Campus

This minor is designed to give students increased exposure to factual information, concepts, and skills in microbiology, and to provide students with a more complete understanding of the roles of microorganisms as they pertain to their major. Students in allied health and related fields may expand their breadth of knowledge in microbial diseases, transmission and prevention, and immunologic responses. Students in applied fields of study can gain additional information on pertinent topics such as the presence and role of microorganisms in water and wastewater treatment, in the recycling of nutrients and soil fertility, in food processing, spoilage, and production, and in disease transmission. The minor is open to any major except Biochemistry, Microbiology, and Biological Sciences General Curriculum or with concentrations in Anatomy and Physiology or Molecular and Cellular Biology.

Program Learning Objectives

1. Explain fundamental concepts and principles in microbiology.
2. Develop experience in common lab and field techniques for microbiology.
3. Integrate statistics, math, physical sciences and technology to answer microbiological questions.
4. Relate ethical, social justice or global perspectives to the study and practice of microbiology.

Minor Requirements and Curriculum

The minor must be completed prior to, or at the same time as, the requirements for the bachelor's degree. A major and a minor may not be taken in the same degree program, and a minor is not required for a degree. Requirements for the minor include:

- At least half of the units must be from upper-division courses (3000-4000 level).
- At least half of the units must be taken at Cal Poly (in residence).
- No more than one-third of the units will be taken with credit-no credit grading (CR/NC), not counting courses with mandatory CR/NC. Departments may further limit CR/NC grading if desired.
- A minimum 2.0 GPA is required in all units counted for completion of the minor.

Code	Title	Units
REQUIRED COURSES		
MCRO 2221	Introduction to Microbiology	4
or MCRO 2224	General Microbiology I	
MCRO 2227	General Microbiology II	4
Select from the following:		7-8
BIO 4456	Immunology	
MCRO 3351	Microbial Genetics	
or BIO 3351	Principles of Genetics	
MCRO 4402	General Virology	
MCRO 4423	Medical Microbiology	
MCRO 4424	Microbial Physiology and Biochemistry	
Approved Electives		
Select from the following: [1]		6-7
ASCI 3303	Animal Parasitology	
ASCI 3312	Production Medicine	
ASCI 3321	Zoonoses and Veterinary Public Health Concerns	
ASCI 4403	Applied Biotechnology in Animal Science	
ASCI 4440	Immunology and Diseases of Animals	
BIO 2200	Special Problems for Undergraduates [2]	
or BIO 3300	Research Experience for Undergraduates	
or BIO 4400	Special Problems for Advanced Undergraduates	
BIO/CHEM 2252	Orientation to Biotechnology	
BIO 4429	Parasitology	
BIO 4456	Immunology	
BIO 4458	Hematology	
CHEM 2240	Organic Chemistry: Fundamentals and Applications	

or CHEM 2242	Organic Chemistry I
CHEM 2244	Organic Chemistry II
CHEM 3330	Foundations of Chemical Analysis
CHEM 3350	Biochemistry: Fundamentals and Applications
or CHEM 3352	Biochemistry
CHEM 3354	Metabolism
DATA 3301	Introduction to Data Science
DSCI 3344	Dairy Microbiology
ENVE 3438	Water and Wastewater Treatment Design
FSN 2245	Elements of Food Safety
FSN 3316	Fermented Foods
FSN 3380	Brewing Science
MCRO/WVIT 3301	Wine Microbiology
MCRO 3320	Emerging Infectious Diseases
MCRO 3342	Public Health Microbiology
MCRO 3351	Microbial Genetics
MCRO 3352	Microbial Genetics Laboratory
MCRO 4402	General Virology
MCRO 4421	Food Microbiology
MCRO 4423	Medical Microbiology
MCRO 4424	Microbial Physiology and Biochemistry
MCRO 4433	Microbial Biotechnology
MCRO 4436	Microbial Ecology
PLSC 3313	Agricultural Entomology
PLSC 3323	Plant Pathology
SS 4422	Soil Ecology
STAT 1110	Applied Statistical Concepts and Methods
STAT 3210	Engineering Statistics
Total Units	**22**

[1] May be substituted with an advisor approved course; consultation with an advisor is recommended before selecting electives.

[2] A maximum of 2 units from BIO 2200, BIO 3300, or BIO 4400 may be applied toward the Approved Electives.