

# MICROBIOLOGY MINOR

## 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
<b>REQUIRED COURSES</b>		
MCRO 2221 or MCRO 2224	Introduction to Microbiology General Microbiology I	4
MCRO 2227	General Microbiology II	4
Select from the following:		7-8
BIO 4456	Immunology	
MCRO 3351 or BIO 3351	Microbial Genetics Principles of Genetics	
MCRO 4402	General Virology	
MCRO 4423	Medical Microbiology	
MCRO 4424	Microbial Physiology and Biochemistry	
<b>Approved Electives</b>		
Select from the following: <sup>1</sup>		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 or BIO 3300 or BIO 4400	Special Problems for Undergraduates <sup>2</sup> Research Experience for Undergraduates Special Problems for Advanced Undergraduates	
BIO/CHEM 2252	Orientation to Biotechnology	
BIO 4429	Parasitology	
BIO 4456	Immunology	
BIO 4458	Hematology	
CHEM 2240 or CHEM 2242	Organic Chemistry: Fundamentals and Applications Organic Chemistry I	
CHEM 2244	Organic Chemistry II	
CHEM 3330	Foundations of Chemical Analysis	
CHEM 3350 or CHEM 3352	Biochemistry: Fundamentals and Applications 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**

<sup>1</sup> May be substituted with an advisor approved course; consultation with an advisor is recommended before selecting electives.

<sup>2</sup> A maximum of 2 units from BIO 2200, BIO 3300, or BIO 4400 may be applied toward the Approved Electives.