

# CERTIFICATE IN VECTOR-BORNE DISEASES

Vector-borne and zoonotic diseases continue to emerge and re-emerge, threatening human and animal health. This comprehensive certificate program in Vector-Borne Diseases (VBD) aims to provide CSU undergraduate students with a solid foundation in vector-borne diseases, equipping them with the knowledge and skills in this disciplinary area for careers in fields such as public health, vector control, and epidemiology.

## Learning Objectives

Upon successful completion, students will be able to:

1. Examine the role of arthropods in the spread of emerging vector-borne pathogens, including the transmission cycles of prominent vector-borne diseases, and how vector physiology and host-pathogen interaction contribute to pathogen transmission.
2. Apply vector control and epidemiologic principles in the context of managing emerging vector-borne diseases.

## Requirements Effective Spring 2025

Additional coursework may be required due to prerequisites.

Students entering the program should have a background in biology or a related field.

Code	Title	Credits
<b>Core Course:</b>		
MIP 462/BSPM 462/ BZ 462	Parasitology and Vector Biology	5
Select a minimum of 4 credits from the following:		4
AB 303	General Entomology Laboratory	
AB 340	Insect Biotechnology	
AB 410	Understanding Pesticides	
AB 523	Advanced Evolution/Classification of Insects	
BSPM 302	Applied and General Entomology	
MIP 298	Introductory Research <sup>1</sup>	
MIP 420	Medical and Molecular Virology	
BSPM 495	Independent Study <sup>1</sup>	
MIP 495	Independent Study <sup>1</sup>	
MIP 533/VS 533	Epidemiology of Infectious Diseases/ Zoonoses	
MIP 535	Vector Collection and Identification Methods	
MIP 540	Fundamentals of Biosafety and Biosecurity	
MIP 567	Introduction to Biology of Disease Vectors <sup>2</sup>	
MIP 568	Biology of Arbovirus Vectors/Genetics <sup>2</sup>	
MIP 569	Biology of Parasite/Bacteria Vectors <sup>2</sup>	
<b>Program Total Credits:</b>		<b>9</b>

research in a vector-biology lab, or participating in the internship program at the Colorado Department of Public Health and Environment for independent study credit.

<sup>2</sup> MIP 567, MIP 568, and MIP 569 are offered in modular format (three 1-credit modules). Students may take MIP 567 alone and stop there, if they choose. If students choose to take MIP 568 and MIP 569, they must also take MIP 567, which can be taken concurrently.

<sup>1</sup> A maximum of 3 total credits may be taken from these courses. Variable credit can be obtained towards the certificate by conducting