

# 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. Articulate 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. Admission into 500-level courses will require a minimum grade of "C" on 400-level course pre-requisites.

Code	Title	Credits
Select one course from the following:		3-5
MIP 462/ BSPM 462/BZ 462	Parasitology and Vector Biology <sup>1</sup>	
MIP 533/VS 533	Epidemiology of Infectious Diseases/ Zoonoses <sup>2</sup>	
Biology of Disease Vectors Module: <sup>1,2</sup>		1-3
MIP 567	Introduction to Biology of Disease Vectors	
MIP 568	Biology of Arbovirus Vectors/Genetics	
MIP 569	Biology of Parasite/Bacteria Vectors	
Select a minimum of 6 credits from the following:		6
AB 340	Insect Biotechnology	
AB 410	Understanding Pesticides	
BSPM 302	Applied and General Entomology	
BSPM 303A	Entomology Laboratory: General	
BSPM 495	Independent Study <sup>3</sup>	
MIP 420	Medical and Molecular Virology	
MIP 495	Independent Study <sup>3</sup>	
MIP 535	Vector Collection and Identification Methods	
<b>Program Total Credits:</b>		<b>12</b>

<sup>1</sup> If MIP 462/BSPM 462/BZ 462 is selected, students must complete one course from the Biology of Disease Module: MIP 567, MIP 568, or MIP 569.

<sup>2</sup> If MIP 533/VS 533 is selected, students must complete all three courses from the Biology of Disease Vectors module: MIP 567, MIP 568, and MIP 569.

<sup>3</sup> Variable credit can be obtained towards the certificate by conducting 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.