

PH.D. IN MICROBIOLOGY

Requirements Effective Fall 2024

Code	Title	Credits
Required Courses:		
MIP 700	Topics in Microbiology ¹	4
MIP 792A	Seminar: Research/Graduate ²	4
MIP 799	Dissertation	17
Select one course from the following:		1
GRAD 544	Ethical Conduct of Research	
GRAD 575/ NSCI 575	Ethical Issues in Big Data Research	
MIP 554	Research Policies and Regulations	
A total of 30 credits can be applied from an MS or DVM degree		30
Electives (Select a minimum of 16 credits from the lists below): ³		16
General Electives:		
MIP 470	Graduate Fellowship Proposal Preparation	
MIP 540	Fundamentals of Biosafety and Biosecurity	
MIP 643	Grant Writing for Microbiology/Pathology	
MIP 666	Writing Scientific Manuscripts	
MIP 710	Research Team Mentoring	
Virology Electives:		
MIP 533/VS 533	Epidemiology of Infectious Diseases/ Zoonoses	
MIP 543	RNA Biology	
Bacteriology Electives:		
MIP 550	Microbial and Molecular Genetics Laboratory	
MIP 573A	Bacterial Pathogenesis: Introduction to Mechanisms	
MIP 573B	Bacterial Pathogenesis: Mechanisms and Lifestyle	
MIP 573C	Bacterial Pathogenesis: Evading Host Defenses	
Vector Biology Electives:		
MIP 535	Vector Collection and Identification Methods	
Molecular and Genomic Approaches Electives:		
MIP 543	RNA Biology	
MIP 545	Microbial Metagenomics/Genomics Data Analysis	
MIP 565/BZ 565	Next Generation Sequencing Platform/ Libraries	
MIP 570	Functional Genomics	
Immunology Electives:		
MIP 525	Flow Cytometry for Immunology	
MIP 542	Pillars of Immunology	
MIP 651	Immunobiology	
MIP 730/ ERHS 730	Principles of Flow Cytometry & Cell Sorting	
Pathology Electives:		

MIP 675	Advanced Bioanalytic Pathology
MIP 765	Comparative Neuropathology
MIP 766	Cytopathology–Clinical Pathology
MIP 767	Advanced General Pathology
MIP 768	Advanced Clinical Pathology
MIP 778	Pathobiology of Laboratory Animals
MIP 779	Laboratory Animal Pathology Rotation
Courses Offered by Other Departments:	
BC 563	Molecular Genetics
BC 565	Molecular Regulation of Cell Function
BIOM 525/ MECH 525	Cell and Tissue Engineering
BMS 500	Mammalian Physiology I
BMS 501	Mammalian Physiology II
DSCI 510	Linux as a Computational Platform
DSCI 511	Genomics Data Analysis in Python
DSCI 512	RNA-Sequencing Data Analysis
ERHS 510/VS 510	Cancer Biology
ERHS 535	R Programming for Research
ERHS 611	Cancer Genetics
GRAD 550	STEM Communication
STAR 511	Design and Data Analysis for Researchers I
STAR 512	Design and Data Analysis for Researchers II

Program Total Credits: 72

A minimum of 72 credits are required to complete this program.

¹ MIP 700 should be taken for a minimum of 4 credits.

² MIP 792A should be taken for a minimum of 4 credits.

³ A minimum of 13 credits must be regular courses with the MIP subject code prefix. Regular course work is defined as courses other than independent or group studies, thesis/dissertation credits, supervised college teaching, unique titled courses offered through the Division of Continuing Education, and any courses graded pass/fail.