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.