

PH.D. IN PATHOLOGY

Requirements Effective Fall 2024

| Code | Title | Credits |
|--|---|---------|
| Required Courses: | | |
| MIP 792A | Seminar: Research/Graduate ¹ | 4 |
| MIP 796 | Group Study 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) ² | | 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/V5 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 675 | Advanced Bioanalytic Pathology | |
| MIP 730/ ERHS 730 | Principles of Flow Cytometry & Cell Sorting | |

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| 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/V5 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 792A should be taken for a minimum of 4 credits.

² MIP 796 should be taken for a minimum of 4 credits.

³ A minimum of 13 credits must be regular courses with the MIP subject code. 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.