

MASTER OF SCIENCE IN MICROBIOLOGY, PLAN B

The fully online non-thesis Master of Science in Microbiology program is designed to strengthen the scientific academic portfolio of those seeking professional degrees and provide differentiating preparation for those seeking careers in industry. Students work with one of the leading microbiology and immunology departments in the nation as they develop professional knowledge and skills.

With the growth of biotechnology and the increase in technology and specialization in applied microbiological sciences, there is a significant national need for additional educational opportunities for individuals wishing to pursue a career in these industries. In addition, many students wish to pursue additional post-baccalaureate studies due to a variety of interests such as improved preparation for professional (medical, veterinary, DO, etc.) schools or Ph.D. programs. The Department of Microbiology, Immunology, and Pathology's (<https://vetmedbiosci.colostate.edu/mip/>) Master of Science in Microbiology online program provides an excellent opportunity to meet these needs. As a recognized world leader in infectious disease basic and translational research (including over \$144 million in active extramurally funded research programs, including a good variety of translational efforts that interface with industrial partners), the Department of Microbiology, Immunology, and Pathology is uniquely positioned to effectively provide high-quality advanced microbiology and immunology training.

The overall goal of the program is to build upon a student's undergraduate training in the life science to provide them with advanced knowledge – particularly in applied areas of the discipline – so that they achieve the skill set necessary to be competitive for future employment in the field or for admission to professional schools. This will be accomplished through:

1. A rigorous curriculum designed to provide cutting-edge knowledge in both theoretical and applied aspects of microbiology, virology, immunology, and molecular biology.
2. A strong emphasis on aspects of the discipline that are useful in real world employment scenarios.
3. A well-rounded curriculum that includes the development of vital professional skills such as verbal and written communication, responsible conduct of research, and biosafety/biosecurity.
4. Active communication with regional and national representatives from the pharmaceutical, biotech, government, and public health sectors to ensure that the program's curriculum remains pertinent and effective.
5. A high-level of communication in the program to facilitate active mentoring, networking and career discussions, and access to real-world research expertise within the Department of Microbiology, Immunology, and Pathology.

Learning Objectives

Upon successful completion, students will be able to:

1. Apply both theoretical and applied aspects of microbiology, virology, immunology and molecular biology.
2. Apply aspects of the discipline in real world employment scenarios.

3. Demonstrate vital professional skills such as verbal and written communication, and discuss policies/regulations in the discipline and biosafety.
4. Develop a high level of communication within the program through active mentoring, networking and career discussions.
5. Utilize cutting-edge facilities and expertise available in the department.

Students interested in graduate work should refer to the Graduate and Professional Bulletin.

Requirements Effective Fall 2024

Code	Title	Credits
MIP 540	Fundamentals of Biosafety and Biosecurity	2
MIP 554	Research Policies and Regulations	1
MIP 611	Advanced Microbiological Research Methods	4
MIP 612	Applied Immunology	3
MIP 613	Applied Microbiology and Virology	4
MIP 614	Medical Microbiology	3
MIP 616	Modern Molecular Biology for Microbiologists	4
MIP 617	Principles of Biodefense/Emerging Pathogens	3
MIP 618A	MIP Master's Seminar: Series A	1
MIP 618B	MIP Master's Seminar: Series B	1
MIP 619A	MIP Master's Topics: Series A	2
MIP 619B	MIP Master's Topics: Series B	2
Program Total Credits:		30

A minimum of 30 credits are required to complete this program.

A scholarly paper is required for this degree.

Requirements for All Graduate Degrees

For more information, please visit Requirements for All Graduate Degrees (<http://catalog.colostate.edu/general-catalog/graduate-bulletin/graduate-study/procedures-requirements-all-degrees/>) in the Graduate and Professional Bulletin (<http://catalog.colostate.edu/general-catalog/graduate-bulletin/>).

Summary of Procedures for the Master's and Doctoral Degrees

NOTE: Each semester the Graduate School publishes a schedule of deadlines. Deadlines are available on the Graduate School website (<https://graduateschool.colostate.edu/deadline-dates/>). Students should consult this schedule whenever they approach important steps in their careers.

Forms (<https://graduateschool.colostate.edu/forms/>) are available online.

Step	Due Date
1. Application for admission (online)	Six months before first registration
2. Diagnostic examination when required	Before first registration
3. Appointment of advisor	Before first registration
4. Selection of graduate committee	Before the time of fourth regular semester registration
5. Filing of program of study (GS Form 6)	Before the time of fourth regular semester registration
6. Preliminary examination (Ph.D. and PD)	Two terms prior to final examination
7. Report of preliminary examination (GS Form 16) - (Ph.D. and PD)	Within two working days after results are known
8. Changes in committee (GS Form 9A)	When change is made
9. Application for Graduation (GS Form 25)	Refer to published deadlines from the Graduate School Website
9a. Reapplication for Graduation (online)	Failure to graduate requires Reapplication for Graduation (online) for the next time term for which you are applying
10. Submit thesis or dissertation to committee	At least two weeks prior to the examination or at the discretion of the graduate committee
11. Final examination	Refer to published deadlines from the Graduate School Website
12. Report of final examination (GS Form 24)	Within two working days after results are known; refer to published deadlines from the Graduate School website
13. Submit a signed Thesis/ Dissertation Submission Form (GS Form 30) to the Graduate School and Submit the Survey of Earned Doctorates (Ph.D. only) prior to submitting the electronic thesis/ dissertation	Refer to published deadlines from the Graduate School website.
14. Submit the thesis/dissertation electronically	Refer to published deadlines from the Graduate School website
15. Graduation	Ceremony information is available from the Graduate School website