

MASTER OF SCIENCE IN MICROBIOLOGY, PLAN A

The MS in Microbiology, Plan A program provides training and preparation to pursue research and/or teaching careers in multiple areas in microbiology including Bacteriology, Virology, Mycobacteriology, Infectious disease pathogenesis, Vector-borne infectious disease, Prion Biology, Immunology, Computational microbiology, and Science Education in Microbiology and Immunology. This program provides opportunities for graduate training in fundamentals of modern investigative microbiology, immunology, and pathobiology with an emphasis on a multi-disciplinary approach to research problems. It involves research in progressive areas such as emerging infectious diseases, biosecurity, interdisciplinary/ systems biology, and translational medicine.

The student's graduate committee guides the student in planning a program of study to meet their goals in their area of specialization and is based on their academic background. Goals for Plan A students include presentation of research at local and national meetings and successful completion and defense of a thesis.

[Students interested in graduate work should refer to the Graduate and Professional Bulletin.](#)

Learning Objectives

Upon successful completion, students will be able to:

1. **Formulate hypotheses and perform independent research:** Students will develop hypotheses and perform original, independent research in their areas of concentration in Microbiology including Bacteriology, Virology, Mycobacteriology, Infectious disease pathogenesis, Vector-borne infectious disease, Prion Biology, Immunology, Computational microbiology, and Science Education in Microbiology and Immunology. They will design experiments and apply discipline specific techniques to test these hypotheses.
2. **Acquire and apply in depth knowledge:** Students will gain a thorough knowledge of principles in Microbiology by synthesizing knowledge from their research focus. Foundational knowledge is gained through course work, scientific presentations in departmental seminars, and through review of the relevant literature.
3. **Demonstrate ability to critically review and analyze scientific literature and apply knowledge from literature to research:** Students will critically analyze and evaluate scientific literature to develop a rationale for how their research builds on the body of knowledge in Microbiology.
4. **Discuss and defend research findings:** Students will present, discuss and defend their research findings in their area of research in Microbiology. This will take place in the form of student presentations at departmental seminars. Results of final thesis will be discussed, presented and defended as requirement of graduation.
5. **Perform activities in support of other graduate students' well-being, sustainability and advancement of knowledge:** Students will periodically present at the departmental seminar and, when possible, engage in graduate student peer mentoring and in activities such as promoting healthy graduate students and professional development activities that are organized by the graduate student organization within the department.