

MICROBIOLOGY AND MOLECULAR GENETICS M.S.

All students must meet the Requirements for the Master's Degree.

OVERVIEW

The Department of Microbiology and Molecular Genetics offers a Master of Science degree. The M.S. degree is a course and research based program. The program requires a minimum of 30 credits of research and coursework, a qualifying exam for candidacy, and the writing and defense of a thesis.

SPECIFIC REQUIREMENTS

Requirements for Admission to Graduate Studies for the Degree of Master of Science in Microbiology and Molecular Genetics

- A bachelor's degree with a minimum cumulative grade point average of 3.00.
- Minimum course requirements: Completion of two semesters of undergraduate biology, general chemistry, organic chemistry and calculus; in addition, one course in genetics, one course in microbiology with a laboratory, and one course in cell biology.
- **Students must identify a research mentor within the Department of Microbiology and Molecular Genetics in whose laboratory they will conduct their Master's Degree research prior to application.**
- GRE/GMAT scores are NOT an admission requirement for the Master's Degree Program in Microbiology and Molecular Genetics.
- Graduate student status will start one week prior to the start of fall classes and will be expected to be maintained fulltime including summers until completion of the Master's Degree in Microbiology and Molecular Genetics.
- Students MUST be admitted through the Graduate College before taking any courses that will be applied to the Master's Degree requirements.

Application Process

- Completion of application to the Graduate College, meeting all Graduate College application requirements.
- **One of the required three letters of recommendation must be from your identified research mentor.**

Minimum Degree Requirements

A minimum of 30 credits are required for completion of the Master's Degree in Microbiology and Molecular Genetics. Students must also meet the Graduate College requirements for the Master's Degree, including maintaining a minimum GPA of 3.0.

Students must complete the following courses:

BIOC 301 General Biochemistry (Every Fall) 3
 BIOC 302 General Biochemistry (Every Spring) 3
 MMG 310 Current Topics in MMG 2
 MMG 232 Methods in Bioinformatics (Every Spring) 3
 MMG 393 Graduate Teaching Practicum 3
 Approved Graduate Ethics Course 1

Students must complete at least one upper level course in Molecular Genetics from the following selection of courses:

MMG 201 Molecular Cloning Laboratory (every Fall) 4
 MMG 211 Prokaryotic Genetics (every Fall) 3
 MMG 233 Genetics & Genomics (every Fall) 3
 MMG 312 Eukaryotic Molecular Genetics (Spring, even years) 3

Students must complete at least one upper level course in Microbiology from the following selection of courses
 MMG 220 Environmental Microbiology (Spring, even years) 3
 MMG 222 Clinical Microbiology (every Spring) 4
 MMG 225 Eukaryotic Virology (Fall, even years) 3
 MMG 320 Cellular Microbiology (Spring, odd years) 4

Remaining credits in the degree program should be selected from lists above or the following approved list of courses. Special topics or other graduate courses maybe acceptable by prior approval from the student's Studies Committee.

CLBI 301 Cell Biology (every Spring) 3
 MMG 223/MLRS 242 Immunobiology (every Spring) 3
 MMG 352 Protein:Nucleic Acid Interactions (Spring, even years) 3

At least 6 (and up to 9) credits of Master's Thesis Research (MMG 391) are required. In addition, a written thesis and defense of this thesis must occur according to the guidelines laid out by the Graduate College.

Studies Committee

The student's Studies Committee will consist of the student's research mentor, a member of the MMG Graduate and Medical Student Education Committee, a faculty member from outside the Microbiology and Molecular Genetics Department to serve as the Chair of the Studies Committee, and a fourth member at the discretion of the student in consultation with their research mentor.

Comprehensive Examination

By the end of the first year, M.S. candidates will write either an extensive literature review or research proposal that pertains to their research interests. Students can expect guidance from their advisor and Studies Committee in the writing of the proposal, but must assume responsibility for the final version and must acquire sufficient mastery of their chosen subject area to defend the proposal. Students will present their written proposal to their Studies Committee. That Committee will determine if the written proposal is satisfactory and, if it is, schedule an oral defense. During the oral defense, the Committee shall be free to explore the knowledge of the student on a range of subjects related to the proposal, much as occurs during a thesis defense. If the written review/proposal is deemed unsatisfactory or if a student fails the oral defense, the candidate will be given one opportunity to rewrite or re-defend his/her proposal. If the student fails a second time, s/he/they will be dismissed from the M.S. program.

Requirements for Advancement to Candidacy for the Degree of Master of Science in Microbiology and Molecular Genetics

Advancement to candidacy requires satisfactory completion of the comprehensive exam.

Thesis Writing and Defense

Thesis writing cannot begin until a student has become a Candidate for the Degree of Master of Science in Microbiology and Molecular Genetics and has received approval from the student's Studies Committee.