

For information on How to Apply, go to:

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MICHIGAN STATE UNIVERSITY

Department of Microbiology
and Molecular Genetics



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Ph.D. Program At a Glance

Course Requirements

Four Lecture classes at the 800 or 900 level

At least two courses offered by MMG: One course must be in molecular biology or genetics

BMB 801: **Molecular Biology** (Fall, 3 credits)

MMG 833: **Microbial Genetics** (Fall, 3 credits)

MMG 835: **Eukaryotic Molecular Genetics** (Spring, 3 credits)

One course must be in cellular physiology or cell biology

MMG 801: **Integrative Microbial Biology** (Fall, 4 credits)

BMB 802: **Metabolic Regulation and Signal Transduction** (Spring, 3 credits)

BMB/MMG 825: **Cell Structure and Function** (Spring, 3 credits)

Topics Seminar Classes

Three courses chosen from MMG 803 or MMG 991, or the equivalent in other departments. These seminars should be chosen to increase your Depth and Breadth of Knowledge.

Teaching Requirement

One semester as a Teaching Assistant (TA) usually done in the second year.

Other Requirements

Completion of the Graduate School Responsible Conduct of Research (RCR) Seminar Series
Participation in Annual Works in Progress (WiPs) Seminar Series.

Comprehensive Exam

A written research proposal on the student's thesis project provided to the Comprehensive Exam Committee (CEC) two weeks prior to seminar and exam. The student then presents in an open seminar. Afterwards there is a closed questioning by the CEC on the student's project and breadth of knowledge in the area. The deadline for completion is 26 months after enrolling.

	Year 1	Year 2	Year 3	Year 4	Year 5
Student interested in Microbiology: Fall <ul style="list-style-type: none"> • MMG 801 or BMB 801 • MMG 833 • RCR Seminar Series • Laboratory Rotations Spring (2 of the following or other relevant courses) <ul style="list-style-type: none"> • BMB 805 • PLB/BMB 810 • MMG 861 • RCR Seminar Series • Laboratory Rotations • Select Major Professor 	<ul style="list-style-type: none"> • MMG 892 sec. 1 • Complete required courses • Conduct thesis research • WIPS Seminars Fall <ul style="list-style-type: none"> • Establish guidance committee Fall or Spring <ul style="list-style-type: none"> • Complete required teaching assistantship • MMG 892 sec. 2 • First guidance committee meeting • RCR training 	<ul style="list-style-type: none"> • MMG 892 sec. 1 • Complete required courses • Conduct thesis research • Annual guidance committee meeting • WIPS Seminars • RCR Training Fall <ul style="list-style-type: none"> • Complete comprehensive exam Fall or Spring <ul style="list-style-type: none"> • Complete required topics seminar courses (MMG 803, 991 or equivalent) 	<ul style="list-style-type: none"> • MMG 892 sec. 1 • Complete required courses • Conduct thesis research • Annual guidance committee meeting • WIPS Seminars • RCR Training 	<ul style="list-style-type: none"> • MMG 892 sec. 1 • WIPS Seminars • RCR Training • Complete thesis research • Write and defend thesis 	
Student interested in Molecular Genetics: Fall <ul style="list-style-type: none"> • BMB 801 • MMG 855 (odd years) • RCR Seminar Series • Laboratory Rotations Spring (2 of the following or other relevant courses) <ul style="list-style-type: none"> • BMB 802 • MMG 813 • BMB 825 • MMG 835 • RCR Seminar Series • Laboratory Rotations • Select Major Professor 					

Available Certification Programs and other opportunities

MMG graduate students have access to a number of additional programs and Certifications that add value to their PhD degrees.

Certification in Teaching College Science and Mathematics:

This program is one of only a handful across the United States that provides graduate students comprehensive training of current teaching practices as well as a guided teaching as research project. The development of a teaching portfolio by the end of the program and the awarding of a certificate supplies participants with significant documentation of their teaching competence and commitment to teaching.

CMSE Bioinformatics Program:

The Department of Computational Mathematics, Science and Engineering offers a Bioinformatics Program for Graduate students to allow them to learn basic skills in computation and bioinformatics.

Certification in Computational Modeling and/or Certification in High Performance Computing:

In addition to their bioinformatics program, CMSE offers two certification programs to MSU STEM graduate students who wish to gain expertise in Computational Modeling and/or High Performance computing.

Available Interdisciplinary Training Grants

- Integrative Pharmacological Sciences Training Program
- Reproductive and Developmental Sciences Training Program
- Plant Biotechnology for Health and Sustainability

Dual Major programs

- Multidisciplinary Training in Environmental Toxicology (EITS)
- Ecology, Evolutionary Biology and Behavior (EEBB)
- Environmental Science and Policy (ESPP)

Dual Degree programs

MD/PhD and DO/PhD