

# Department of Microbiology and Cell Biology

Graduate programs in the Department of Microbiology and Cell Biology offer exciting opportunities to work with nationally and internationally recognized faculty on a wide range of research topics spanning host-pathogen interactions, geomicrobiology, aquatic microbiology, human microbiomes, and immunology. It is the goal of the faculty to prepare our students for successful careers in academic research, government, and/or the biotechnology industry. Successful applicants to the program will have already established a commitment to excellence through academic achievements and prior research experience.

We offer Ph.D. or M.S. degrees in Microbiology and Immunology or Biological Science to our graduate students. The Ph.D. programs are designed for students who are committed to a scientific research career and are willing to commit an average of 5 to 6 years in pursuit of the training that is necessary to qualify for these degrees.

The M.S. degree is for students who wish to increase their knowledge base in basic research through an intensive 2- to 3-year training period. **Prospective M.S. students should secure a faculty sponsor prior to applying for admission.**

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## Admission

A Bachelor's degree in an area of Biology, Chemistry, Physics, Applied Math or Psychology is recommended. Students with Bachelor's degrees outside these areas are also encouraged to apply; such students will generally be required to complete appropriate courses while enrolled at MSU to make up subject matter deficiencies prior to full acceptance into the Ph.D. and Masters programs. Factors that the department uses in its admissions process include TOEFL scores (for non-native English speakers), reference letters, GPA and previous coursework and research experience. GRE scores are optional, but will be considered if provided.

Entrance to these programs is also possible through MSU's Molecular Biosciences Program (<http://mbprogram.montana.edu/index.asp> (<http://mbprogram.montana.edu/>)). This is an interdisciplinary graduate training program that includes faculty from a wide range of departments specializing in aspects of biology on the MSU campus.

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## Research Facilities

Graduate research will be performed primarily in the laboratory of the student's thesis adviser. Additional facilities will be available from the department and in laboratories collaborating with the student's adviser.

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## Financial Assistance

A number of research and teaching assistantships are available for qualified graduate students. These appointments are normally for half-time assignments (19 hours per week) during the academic year. Some appointments may also be available during the summer. **Assistantships will only be offered to formally admitted graduate students and are offered for all research-based (M.S. Plan A, PhD) programs.**

## Degrees Offered

- Master of Science in Biological Sciences (<http://catalog.montana.edu/graduate/agriculture/cell-biology-neuroscience/ms-biological-sciences/>)
- Master of Science in Microbiology and Immunology (<http://catalog.montana.edu/graduate/agriculture/microbiology/ms-microbiology-plan-a/>)
- Doctor of Philosophy in Biological Sciences (<http://catalog.montana.edu/graduate/agriculture/cell-biology-neuroscience/phd-biological-sciences/>)
- Doctor of Philosophy in Microbiology and Immunology (<http://catalog.montana.edu/graduate/agriculture/microbiology/phd-microbiology-immunology/>)

## Program Requirements

### M.S. Degree

Students may pursue the Master's degree under either Plan A or Plan B. Plan A requires the completion of 30 credits of acceptable graduate-level coursework and thesis credits. The exact proportion of credits will be determined for each student by their advisory committee. Under Plan B, a 3-6 credit project and 24-27 credits of acceptable graduate-level coursework must be completed.

Master's candidates must take an oral comprehensive exam near the completion of their graduate program. Required curriculum will be tailored to the needs and interests of each student in consultation with their graduate adviser and advisory committee.

### Ph.D. Degree

As a general guideline, Ph.D. students are required to complete 60 credits. This will include a mix of dissertation and graduate-level coursework credits. The exact proportion of credits will be determined for each student by their advisory committee.

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## Research Experience

Plan A (thesis option) Master's degree students gain research experience through their thesis and are expected to submit the results of their thesis work to at least one journal or conference. Plan B (project option) Master's degree students may choose to gain some research experience in the context of their project. Ph.D. students will gain research experience through their doctoral work, journal or conference submissions, and attending conferences.