Department of Microbiology and Cell Biology

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The Department of Microbiology and Cell Biology (MCB) conducts one of the premier infectious disease research programs in the Northwest, as demonstrated by the success of our faculty in competing nationally for extramural grant funding and publishing high-impact papers. Research funding comes from a range of sources such as the National Institutes of Health, US Department of Agriculture, National Science Foundation and the Montana Agricultural Experimental Station among others. Over the past five years, MCB averaged over $6 million for annual research expenditures. MCB is also home to an NIH Center of Biomedical Research Excellence in Zoonotic and Emerging Infectious Diseases, which provides substantial core facilities and training opportunities for junior investigators. MCB is housed in a state-of-the-art facility with core laboratories for flow cytometry, cell biology, and molecular sciences, as well as pathogen containment facilities for small (BSL-3) and large animal research (ABSL-2). Instrumentation suites house equipment for DNA sequencing, genomic analysis, flow cytometry and cell sorting, and confocal microscopy.

We are truly unique in our close proximity to Yellowstone National Park. On our doorstep is one of the most exciting microbial ecosystems in North America, ripe with opportunities to discover new microbial life forms and contribute to major biotechnological advances. Many of our undergraduate and graduated students conduct research in the Park under the mentoring of our distinguished faculty.

Weekly seminars are offered by the department and the Frank N. Nelson Distinguished Lecture Series brings many accomplished scientists to Montana State University.

Admission

For detailed information on applying for admission, refer to the Admission Policies and Application Requirements sections on the department webpages: https://www.montana.edu/mbi/graduates/GradSchool/AppInfo.html

The Graduate Committee, MBC faculty, and the MBC head will decide on the acceptability of all applicants. The Graduate Committee will serve as the adviser for all students accepted into the program during their first year of study.

Research

The research problem will be chosen in consultation with the student’s thesis or dissertation advisor. Research areas include microbiology, molecular biology and immunology, bacteriology, cell biology, mycology, parasitology, protozoology, physiology, genetics, biochemistry, ultrastructural cytology, virology, immunopathology, and a strong focus on biomedical research. Specialized equipment and facilities include large and small animal isolation units, a flow cytometry core facility, automated DNA sequencers, proteomics and genomics instrumentation, a microscopy core, numerous analytical equipment, multiple tissue-culture and histopathology laboratories.

Our research facilities at MSU include modern, well-equip laboratories and specialized state of the art equipment for instruction and research. In addition, the Department hosts three major university facilities, currently supported through Montana IDeA Network of Biomedical Research Excellence (INBRE) program, including:

- Functional Genomics Core Facility (http://www.inbre.montana.edu/bioinformatics/functional_genomics.html)
- Bioinformatics Teaching and Research Facility (http://www.inbre.montana.edu/bioinformatics/bioinformatics_facility.html)
- Community Based participatory Research (CBPR) and Health Disparities Core Facility (http://www.inbre.montana.edu/ceccbpr.html)
- Cooley Laboratory (http://www.montana.edu/mbi/facilities/CooleyLab.html)

Financial Assistance

Students of high scholastic caliber are encouraged to contact the Department of Microbiology and Cell Biology for information about teaching and research assistantships, and fellowships. Most of our graduate students are supported financially throughout their graduate training. Both assistantships and fellowships are awarded for one-year periods but are renewable if the graduate student’s progress has been satisfactory. See the Graduate Assistantships sections of the departmental website for detailed information on appointment criteria.

Graduate Programs

- Cell Biology and Neuroscience (http://catalog.montana.edu/graduate/agriculture/cell-biology-neuroscience/)