



THE GRADUATE SCHOOL | MONTANA STATE UNIVERSITY

Department of Microbiology

DEGREES OFFERED

- M.S. in Microbiology
- PH.D. in Microbiology



Yellowstone National Park

Department of Microbiology Graduate
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Microbiology is one of the most relevant, dynamic and exciting disciplines in the biological sciences. In the Department of Microbiology at Montana State University, our main goal is to prepare students for leadership roles as microbiologists in industry, government agencies, health related fields, environmental health, university teaching and research.

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

- Functional Genomics Core Facility
- Bioinformatics Teaching and Research Facility
- Environmental Health Analytical Facility

All students gain a strong background in microbiology, however, interdisciplinary programs with strong ties to other departments and programs are encouraged. Students interested in the environmental sciences can include areas such as ecology, chemistry, entomology, plant and soil sciences, plant pathology and interaction through the Center for Biofilm Engineering. Students interested in the biomedical sciences can include areas such as biology, biochemistry and veterinary science through the WWAMI Medical Education Program. Each graduate student develops a program of study and research designed specifically to fit their own experience and interests. A more detailed description of our entire graduate program can be found in the Graduate Student Handbook on our website. This site also includes application requirements and procedures.

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FACULTY RESEARCH & INTEREST:

Our faculty are internationally recognized for their research and are committed to teaching, training and inspiring students in the microbiological sciences.

Interests include:

- Environmental fields such as environmental microbiology, biology of extreme environments, geomicrobiology, aquatic microbiology, microbial communities and ecology
- Medically related areas such as medical mycology, mechanisms of pathogenicity, molecular and cellular immunology, immunoparasitology, virology, leukocyte and cell molecular biology.

FACULTY

Mark Jutila, Interim Department Head & Professor, Veterinary Molecular Biology, Ph.D., Washington State University, 1986. Inflammatory disease and developmental immunology.

Anne Camper, Affiliate Professor, Ph.D., Montana State University, 1995. Bacterial attachment to surfaces, treatment of drinking water and microbial regrowth in distribution systems.

Kari Cargill, Academic Coordinator and Adjunct Instructor, M.S., Montana State University, 1990. Science education.

Mensur Dlakic, Associate Professor, Ph.D., University of Nevada, Reno, 1997. Bioinformatics, biochemical and molecular biology.

Matthew Fields, Associate Professor, Ph.D., Cornell University, 2001. Anaerobic microbiology, physiology and ecology, bioremediation, environmental genomics.

Michael Franklin, Associate Professor, Ph.D., University of Tennessee, Knoxville, 1991. Molecular genetics, biofilms, microbial exopolymer production.

Gill Geesey, Professor, Ph.D., Oregon State University, 1975. Biofilm microbiology, industrial biotechnology.

Robin Gerlach, Affiliate Professor, Ph.D., Montana State University, 2001. Biofilms for control of contaminated soils and water.

Sandra Halonen, Associate professor, Ph.D., Louisiana State University, 1993. Intracellular protozoan pathogens with emphasis on *Toxoplasma gondii* in the central nervous system.

Barbara Hudson, MT (ASCP), CLS, Medical Laboratory Science Program Director, M.S., University of North Dakota, 2001. Medical bacteriology, parasitology, hematology.

Algirdas Jesaitis, Professor, Ph.D., California Institute of Technology, 1973. Molecular basis of signal transduction, host defense in human neutrophils.

Deborah E. Keil, Associate Professor, Ph.D., MLS (ASCP), DABT Mississippi State University, Starkville, 1996. Environmental Toxicology, Immunotoxicology, Medical Laboratory Science, Clinical Chemistry

Zbigniew Lewandowski, Affiliate Professor, Ph.D., Polish National Academy of Sciences, 1976. Microsensor design, chemical gradients/biofilm structure relationships, hydrodynamics, kinetics in biofilms.

Aurelien Mazurie, Research Associate with Bioinformatics, Ph.D., Pierre and Marie Curie University, Paris, France, 2005. Bioinformatics (exploitation of high-throughput biological data sets), integrative biology, evolution and structure.

Marcie McClure, Professor, Ph.D., Washington University, 1984. Genomics, computational biology.

Tim McDermott, Affiliate Professor, Ph.D., University of Minnesota, 1989. Soil microbe-plant interactions, biological transformations in soils, microbial diversity in extreme thermal soil.

Heini Miettinen, Associate Research Professor, Ph.D., Yale University, 1990. Function of inflammatory receptors, cell signaling, intracellular trafficking of chemottractant receptors.

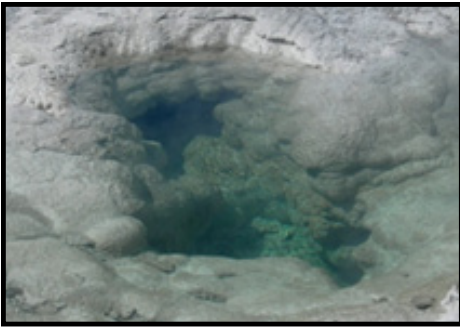
Brent Peyton, Affiliate Professor, Ph.D., Montana State University, 1992. Extremophilic bioprocessing, in situ biocatalyzed heavy metal biotransformations.

Martin Teintze, Affiliate Associate Professor, Ph.D., University of California, San Diego, 1981. HIV vaccine antigens and HIV entry inhibitors based on chemokine receptor antagonists.

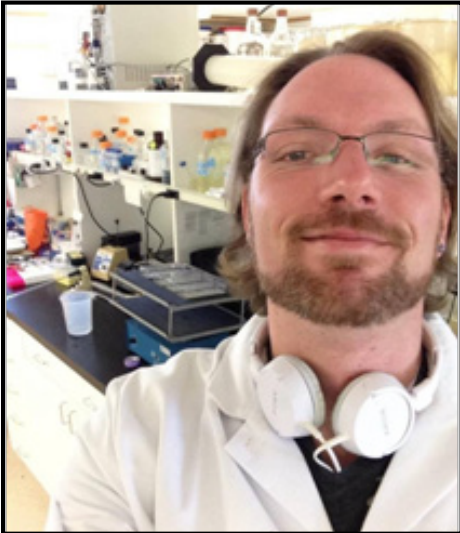
David Ward, Affiliate Professor, Ph.D., University of Wisconsin, Madison, 1975. Microbial ecology, microbiology of extreme environments, composition of microbial communities, biochemical markers.

Seth Walk, Assistant Professor, Ph.D., Michigan State University, East Lansing, 2007. Microbial ecology and evolution, GI tract microbiology, and epidemiology of nosocomial pathogens.

Mark Young, Affiliate Professor, Ph.D., University of California, Davis, 1987. Spherical virus assembly and disassembly, viral protein cages for nanomaterials synthesis, isolation of viruses from extreme thermal environments.



Yellowstone National Park courtesy of Steve Hamden



Skip Olshefsky in Seth Walk's Laboratory



Elliott Barnhart in Matthew Fields Laboratory



Yellowstone National Park courtesy of Steve Hamden