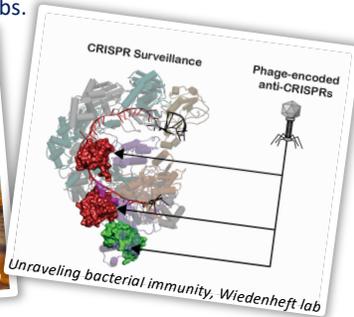


## Why earn a Ph.D. in MCB at Montana State?

**Our graduates are poised for career success.** Microbiology & Cell Biology (MCB) are among the most rapidly advancing scientific fields. These disciplines are critical to modern challenges in medicine, public health, energy, biotechnology, environmental health, and global change. A graduate degree in MCB provides a suite of career options, including in industry, academia, government, education, and healthcare. [The national employment rate for biology Ph.D. holders is >97%](#). The rate for MCB students is equivalent or higher, with the vast majority of recent (last 2-3 yrs) graduates employed as postdoctoral or research scientists in academic, government, or industry labs.



**Our faculty are world-renowned.** The Department comprises 23 tenure-track, 17 research-track, and 8 teaching-track [faculty](#) with expertise spanning host-pathogen interactions, geomicrobiology, aquatic microbiology, human microbiomes, immunology, and neuroscience. Our faculty lead the university in grant-funding, with over \$12 million in 2021 alone from sponsors including NIH, NASA, NSF, United States Department of Agriculture (USDA), Department of Defense (DoD), and Department of Energy (DoE), as well as prestigious private foundations, including the W.M. Keck and Murdock Foundations. A sampling of recent awards:

- [\\$1 million from DOE to help optimize algae biomaterials production](#)
- [\\$3 million NSF training grant to support Ph.D. students studying extremophiles](#)
- [\\$3.4 million from DOE to study how microbes extract valuable materials from the mineral pyrite](#)

### MCB faculty actively seeking graduate students for 2023 include\*\*

- [Eric Boyd](#) - geomicrobiology, environmental microbiology, microbial physiology and evolution
- [Alyssa Evans](#) - virology, pathogenesis, neuroimmunology, molecular genetics
- [Matthew Fields](#) - biofilms, hydrocarbon degrading microbes, extreme environments
- [Ed Schmidt](#) - gene regulation, cell and organismal physiology, genetics, embryology, redox biology
- [Frank Stewart](#) - marine microbiology, symbiosis, fish microbiomes
- [Jovanka Voyich](#) - host pathogen interactions, gene regulation, immunology
- [Blake Wiedenheft](#) - CRISPR, phage, viruses, Ago, bacteria defense mechanisms, viral diagnostics

\*\*Other [faculty](#) may also be recruiting. **We encourage all applicants to contact prospective mentors to inquire about graduate opportunities.**



**Our research environment is unlike any other.** MCB students take advantage of the unique natural laboratories of the northern Rockies. Hot spring ecosystems of nearby Yellowstone National Park (YNP) are invaluable models for exploring the diversity, biotechnological potential, and origins of microbial life. YNP research is facilitated by MSU's distinguished [Thermal Biology Institute](#), a multidisciplinary research center seeking to understand the extreme limits of life on our planet. Many MCB students also work closely with MSU's [Center for Biofilm Engineering](#). The CBE has been a world leader in biofilm research for over 30 years - it provides cutting-edge instrumentation and expertise for graduate projects, as well as opportunities to build relationships with industrial partners. Graduate research in MCB often involves collaborations with other MSU departments and institutions unique to Montana, such as NIH's state-of-the-art [Rocky Mountain Laboratories](#) biomedical research facility in Hamilton, Montana. MCB students can also participate in NSF and NIH-funded traineeship programs focused on [Extreme Biofilms](#) and [translational health science](#). A sampling of recent discoveries led by MCB Ph.D. students:

- [Libby Fones quantifying the activity of cells inhabiting the microfractures and pore spaces of intact rocks](#)
- [Abby Luu showing how exposure to mammalian proteins might 'train' our immune system against bacterial invaders](#)
- [Kathryn Zimlich helps develop 3D printing technology for advancing biofilm science](#)



**Our community is the "complete package".** [Bozeman, Montana is consistently ranked as one of the best places to live in the US.](#) The town sits in the beautiful Gallatin Valley surrounded by mountain ranges and rivers. The northern boundary of Yellowstone National Park is 50 miles due south. World-class fishing and rafting is just down the road. The closest ski hill is 16 miles north of a historic downtown filled with fine restaurants, art galleries, theaters, nature trails, and even a bowling alley. The area is served by an international airport, experiences four distinct seasons, is safe and family friendly, and has a rich history and culture. MCB faculty, staff, and students come from all walks of life. The department, along with MSU as an institution, [is committed to an environment of diversity and inclusiveness.](#)

**How to apply.** Applicants to the Ph.D. program for Fall 2023 must submit all materials by **December 15<sup>th</sup>, 2022.**

Please follow the application instructions at <http://www.montana.edu/mbi/graduates/GradSchoolAppInfo.html>