Microbiology, PhD

For the degree of Doctor of Philosophy in Microbiology

Head of Department: James Slauch
Directors of Graduate Studies: Andrei Kuzminov, Cari Vanderpool, and Rachel Whitaker
MB Graduate Admissions Email: mcb-grad@illinois.edu
Overview of MCB Admissions Requirements: http://mcb.illinois.edu/graduate/gradprospect
Overview of Grad College Admissions & Requirements: https://grad.illinois.edu/admissions/apply

Department Website: https://mcb.illinois.edu/departments/microbiology
School Website: https://mcb.illinois.edu
College Website: https://las.illinois.edu
Department Office: B103 Chemical and Life Sciences Laboratory, 601 South Goodwin Avenue, Urbana, IL 61801
Phone: (217) 333-1736

The requirements for a Ph.D. from the Department of Microbiology include successful completion of course work, teaching, one to two first-author manuscripts in peer-reviewed journals, passing a preliminary examination, and writing and depositing a research thesis.

Graduate Degree Program in Microbiology

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The Department of Microbiology at Illinois offers unique opportunities for graduate students to become skilled and creative microbiologists. Our graduate program of study leads to the doctor of philosophy degree (Ph.D.). We have outstanding resources in our internationally recognized faculty, graduate students, and research facilities. This exposes our students to the latest research techniques and fosters their development as independent scientists. The program has particular strengths in the areas of microbial physiology, metabolism, genetics, evolution, and pathogenesis. For an application and departmental materials that provide greater detail on programs, offerings, admission, degree requirements, and financial aid, visit our website at www.mcb.illinois.edu/departments/microbiology.

Graduates from the Department of Microbiology are employed in colleges and universities, industry, and government. Scientific advances in genetic engineering and biotechnology provide many opportunities in pharmaceutical, chemical, and genetic engineering companies.

The Department of Microbiology is a part of the School of Molecular and Cellular Biology (MCB), which also includes the Departments of Biochemistry, Cell and Developmental Biology, and Molecular and Integrative Physiology. The Department is part of an umbrella program in MCB that encompasses over 70 different research laboratories. Students admitted into any of these departmental graduate programs can select faculty thesis advisors from these active research laboratories in the School. Close ties are also maintained with the School of Integrative Biology, the School of Chemical Sciences, the Carle Illinois College of Medicine, and the College of Veterinary Medicine.

Admissions

Applicants interested in the Microbiology PhD program will need to apply directly to the School of Molecular and Cellular Biology (MCB) PhD program, https://mcb.illinois.edu/graduate/gradprospect. The MCB PhD program is an umbrella program that requires admitted students to spend their first semester rotating among three different labs to explore their interests before joining one of our four departments.

MCB Admission requirements include a bachelor's degree in biological or physical sciences, a grade point average of a 3.0 or higher (A = 4.0), prior research experience and three letters of recommendation from individuals who can attest to the applicant's academic and research background. The Graduate Record Examination (GRE) is not required. Applicants interested in pursuing a PhD in Microbiology should have a total of at least 15 credit hours of physical or biology sciences, including general biology, or microbiology, chemistry through organic chemistry and biochemistry, and mathematics through calculus. In addition to these requirements, non-native English speaking applicants must attain a minimum Test of English as a Foreign Language (TOEFL) overall score of 96, with at least a score of 22 on the speaking section. MCB does not accept the International English Language Testing System (IELTS) to show English proficiency. Graduate College requirements also apply.

Graduate Teaching Experience

Experience in teaching is considered to be a vital part of the graduate program and is required as part of the academic work of all PhD degree candidates. For the Department of Microbiology, a minimum of two semesters of teaching experience is a degree requirement.

Faculty Research Interests

Major areas of research interest include gene expression and regulation in bacteria, archaea, and eukaryotes; virus pathogenesis and host-cell interactions; viruses of bacteria and archaea; membrane biogenesis; lipid and polysaccharide synthesis in bacteria and yeast; cell wall biogenesis; bacterial pathogenesis and bacteria-host interactions; immunology; DNA replication, recombination, and repair; anaerobic microbiology; the biochemistry and physiology of methane formation; mechanisms of oxygen toxicity; bacterial and archaeal genomics, ecology, and evolution. For further details, please consult the Department of Microbiology's website (www.mcb.illinois.edu/departments/microbiology).
Facilities and Resources
The Microbiology Department is located in the modern Chemical and Life Sciences Laboratory (CLSL). Central to main campus, the CLSL houses all of the major equipment and expertise necessary for research in microbiology, cell biology, molecular biology, genomics, and biochemistry.

The University of Illinois has excellent core facilities to aid in scientific research, many of which are located in buildings adjacent to CLSL. Each core facility has full-time salaried support staff for training and support. The Roy J. Carver Biotechnology Center (http://biotech.illinois.edu/) includes core research facilities supporting genomics, proteomics, metabolomics, flow cytometry, bioinformatics and translational medical research (http://biotech.illinois.edu). The Center for Microscopic Imaging is a campus-wide service center for electron, confocal, and light microscopy.

Several services are available to graduate students for support outside of the classroom and laboratory. The University of Illinois library is the nation's third largest university library, allowing access to reference books and on-line scientific journals. The Writers Workshop offers free, personal writing assistance for class assignments, scientific manuscripts, and theses. Please visit the School of Molecular and Cellular Biology (http://mcb.illinois.edu) to learn about these and other resources available to graduate students.

Financial Aid
All students admitted into the PhD program receive financial support throughout their graduate training. Incoming graduate students are supported by the School of Molecular and Cellular Biology. Several University Fellowships are awarded to outstanding applicants on a competitive basis. Financial support is usually in the form of a research assistantship, teaching assistantship, and/or fellowship. In addition to this stipend, we offer a tuition and service fee waiver. A health insurance fee and other miscellaneous fees, must be paid by the student.