Microbiology

Studying the smallest organisms to solve the world's biggest problems.
The Department of Microbiology at Oregon State University is pioneering the study of bacteria, viruses and parasites to address environmental, medical and molecular biological problems and create new resources for a healthy environment. We offer the only bachelor of science degree in microbiology in Oregon, training more than 200 students each year.

**Specialized options**
Students can pursue two distinctive options to explore their interests in more depth. The Pre-Medicine option is designed for students interested in attending medical school. The Aquatic Microbiology option is for students with an interest in the microbiology of marine and freshwater environments.

**Student success**
Our expert advisors help students make academic decisions consistent with their goals and abilities. They can also be tremendously helpful in interpreting and explaining university policies and procedures to keep students on track for graduation. Current course requirements are available online in the OSU General Catalog. For information about careers and graduate programs, contact the department.
Research opportunities

Microbiology offers highly collaborative and interdisciplinary undergraduate and graduate degrees. Students engage in both theoretical and experimental learning from outstanding teachers and researchers.

Students acquire valuable skills, such as formulating hypotheses, designing experiments and analyzing data as well as preparing and communicating their research. These skills are foundational to career success in research, medicine and industry.

Students in microbiology have an opportunity to work hands-on in a laboratory environment as well as conduct field studies, learning to use the high-tech instrumentation and to perform lab techniques necessary for careers in food science, fermentation, biotechnology and environmental sciences. Below are just a few of our labs that provide invaluable learning experiences to our majors.

**Tom Sharpton’s Lab** studies how the human microbiome relates to human health. Students in the lab apply computational and statistical skills to characterize microbiome biology.

**Martin Schuster’s Lab** specializes in the study of bacterial communication and cooperation and trains students in a variety of approaches ranging from genetics and biochemistry to genomics and systems biology.

**Rebecca Vega-Thurber Lab, funded by National Science Foundation**, studies deep-sea ecosystem and marine disease from samples collected across the Virgin Islands, Australia’s Lizard Island, the Florida coast and California.

The pioneering **John L. Fryer Aquatic Animal Health Laboratory** is renowned for its study of infectious agents in salmon and other aquatic species, and prepares students for careers in aquatic animal health research labs.

**The Microbiology Students Association (MSA)** provides students extracurricular experiences with field trips, outreach activities and social events. Several students attend local and national microbiology conferences each year.
What can you do with a degree in Microbiology?

Cure debilitating diseases, work with world-renowned scientists, solve environmental and global health problems or start your own winery.

Microbes and small organisms are at the center of many of the world’s urgent health and environmental problems. Modern microbiology research can illuminate solutions in medicine, public health, food, energy, environment, genetic engineering and biotechnology.

Career preparation

The Department of Microbiology is committed to helping students achieve the knowledge and skills to put them on the right career path and ensure their future success. Students earning a bachelor’s degree in microbiology are prepared for a multitude of diverse careers, working as food, industrial or environmental microbiologists in a corporate, government, university or medical school lab.

Many graduates pursue studies at the graduate level or enter professional schools in medicine, pharmacy, optometry, dentistry, medical laboratory science and veterinary medicine, among other health professions. Majoring in microbiology offers students excellent preparation for technical careers in medicine, agriculture, biotechnology, pharmacology, forensics, patent law, and environmental fields.

Career prospects are excellent for microbiology graduates due to the rigorous academic training students receive that involves substantial laboratory and research experiences.

Sample curriculum

YEAR ONE
- General Chemistry
- Calculus
- Freshman Orientation
- General course: Environmental Economics & Policy
- Study abroad

YEAR TWO
- Organic Chemistry
- Statistics
- Principles of Biology
- General Microbiology with Lab
- General course: Climate Change, Water & Society
- Summer research

YEAR THREE
- General Biochemistry
- Bacterial Molecular Genetics
- General Physics
- General course: U.S. Latino Identities & Cultures
- Internship

YEAR FOUR
- 22 credits of approved upper-level microbiology courses, such as Immunology, The Human Microbiome, Parasitology, Microbial Biotechnology, Virology, Fermentation Microbiology and more.
- Electives, upper division courses

Recent graduates work as:
- Biomedical/biotechnology researchers
- Health officers
- Sanitarians
- Wine microbiologists
- Clinical microbiologists
- Dairy/food microbiologists

Recent graduates have been accepted at:
- Graduate school
- Medical school
- Health professional schools

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