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Departments
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Microbiology

Molecular &
Cellular Biology

Physics

Pre-professional
Programs in the
Health Sciences

Professional
Science Masters

Science &
Mathematics
Education

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Zoology

Microbiology

Microbiology faculty successfully competed for \$5.5M in research grants and contracts in 2004-05.

More than 80% of undergraduate majors in microbiology participate in research alongside professors, post-docs and graduate students.

Microbiology graduates are very employable. Some 95% of undergraduate and graduate students are employed in their field within 3 months of graduation.

Microbiology is a dynamic discipline of the biological sciences. **Microbes play major roles in the life and death of humans, animals, and plants; in the quality and safety of our food supplies; in the health and sustainability of our air, land, and water; in bio-warfare and homeland security. The teaching and research activities in the Department of Microbiology strive to educate students about these issues and develop new understanding of microbes in the world and in producing disease.**

Research interests of faculty in microbiology include:

- Bacterial ecology—identifying the contributions of open ocean bacteria and soil bacteria to global chemical cycles using genomic and classical experimental approaches.
- Vaccine research—adapting bacteria commonly found in dairy foods for vaccine production, and developing new approaches to dengue and West Nile virus vaccines.
- Viral and bacterial molecular biology—studying the detailed workings of microbes with biochemical and genetic experiments.
- Fish health—studying bacterial and parasitic infections in Northwest fisheries.
- Microbiological contamination—tracking fecal bacteria in effluent and detecting toxins with biosensors.

Oregon State University was barely 40-years-old when the department of microbiology had its beginning in 1899. Over the past 100 years, the department has matured into a major unit of the university, playing prominent roles in research, education, and service. OSU's microbiology department is the only one in Oregon with both undergraduate and graduate students.

Research

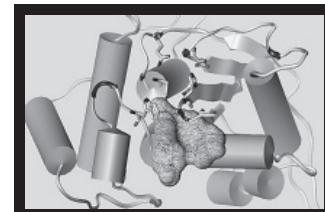
Because microorganisms play central roles in other disciplines of science, microbiology has evolved into an extremely interactive discipline among the sciences. We gather strength from our interactions and collaborations with scientists in other departments of the colleges of Science, Atmospheric and Oceanic Sciences, Pharmacy, Engineering, Agricultural Sciences, Forestry, Health and Human Sciences, and

Veterinary Medicine. Research opportunities range from molecular studies in the lab to field studies in the oceans, rivers and forests. We have close ties with two local biotechnology companies.

Microbiology faculty and their colleagues have made seminal discoveries in the areas of microbiology research, including:

- Dr. Stephen Giovannoni is an expert on the characterization of marine microbes from the natural ocean environment. In early 2005, he was awarded a five-year, \$3.23 million grant from the Marine Microbiology Initiative of the Gordon and Betty Moore Foundation. He was also named to the Emile F. Pernot Distinguished Professorship in Microbiology in 2005.

- Chelsea Byrd, who completed her Ph.D. in 2005 in the laboratory of microbiology professor Dr. Dennis Hruby, has published 11 research papers describing her studies on vaccinia virus. She was awarded the prestigious MacVicar scholar award and was a finalist in the 2005 national Distinguished Dissertation Award competition.
- The laboratory of Dr. Michael Kent, director of the Center for Salmon Disease Research, has helped to identify a parasite carried by an invasive species of minnow as being responsible for dramatic declines of a threatened fish species in Europe during the past 40 years. The study was reported in the premier journal *Nature*.



Hardly a day passes without a microbiological issue in the news: flu and SARS in Asia; West Nile virus in the United States; monkeypox imported with exotic pets; Norwalk virus on cruise ships; drug-resistant bacteria in hospitals; anthrax and other bioterror threats; bacteria living in minute fissures among rocks and abundantly in the oceans; parasites that affect fish health...

Microbiology

Undergraduate Education

The Microbiology Department offers an undergraduate program leading to a bachelor of science. Our 130-140 majors proceed to graduate school, professional schools (medical, dental, etc.) or employment after graduation. Our broad course offerings closely match the curriculum guidelines of the American Society for Microbiology. Undergraduate courses are taught by professional instructors or professors actively engaged in research. We value undergraduate involvement in research laboratories alongside learning in the lecture room. Several scholarships are available to financially assist microbiology majors.

Our graduates have obtained jobs with biotechnology companies, food and brewing industries, pharmaceutical companies, hospitals, research programs in academia, public health, water testing, research and development, forensics and more. Our graduates meet all requirements for medical and dental school. Some additional courses are required for pharmacy, physician assistant programs, nursing and veterinary science.

Graduate Education

The Microbiology Department at Oregon State University was founded in 1899, and has a long and rich history of contributions to microbiology. Our graduate training offers cutting-edge research and advanced coursework, leading to the Master of Science and Doctor of Philosophy degrees. Our faculty has research interests that generally fall into three categories of microbiology: pathogens, environment, and biotechnology.

All graduate students are considered for financial aid. Teaching and research assistantships are available. The department participates in an Integrative Graduate Education & Research Traineeship (IGERT) program focused on cross-disciplinary studies of life below the earth's surface. Students studying in microbiology laboratories often work alongside students enrolled in related graduate programs such as Molecular & Cellular Biology, Biochemistry & Biophysics, or Fisheries & Wildlife.

Outreach

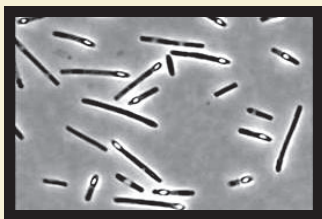
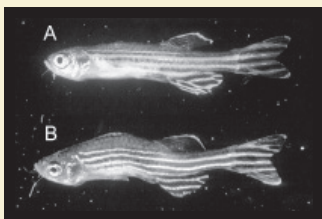
Faculty and students participate in Discovery Days, a twice-annual campus event attended by 4,000 K-8 students with hands-on activities meant to excite children in microbiology.

Faculty members conduct the Salmon Disease Workshop every second year to keep fish-health professionals current in the field of salmonid diseases.

Faculty

The Department of Microbiology has 13 faculty members, who have been recognized as local and national leaders:

- Students' top teaching award
- Oregon Professor of the Year
- OSU Alumni Distinguished Professor Award
- Editorial boards of 18 international scientific journals
- Fellow of the American Academy of Microbiology (2)
- NIH Career Development Award
- Presidential Early Career Award for Scientists and Engineers
- Pfizer Award for Research Excellence



for more information, please contact:

Department of Microbiology
College of Science
Oregon State University
220 Nash Hall
Corvallis, Oregon 97331
phone: 541 737-4441
fax: 541 737-0496

email: microbiology@oregonstate.edu
<http://microbiology.science.oregonstate.edu>

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