Microbiology

Use your understanding of microscopic organisms to prevent disease and clean up pollution.

THIS MAJOR IS A GOOD FIT
IF YOU CAN SEE YOURSELF:

PRYING INTO A WORLD too small for your eyes to see

STUDYING MATH and SCIENCE

EXPERIMENTING WITH MICROBES in state-of-the-art laboratories

This major teaches you how microorganisms such as fungi, bacteria, viruses, and certain algae function in ecosystems, cause disease, and affect the healthfulness of food. Learn about the microbial world, including subcellular organization and function, life cycles, and cell division. Discoveries in microbiology help us to cure diseases in plants, animals, and humans and to treat toxic waste. Our faculty conducts research on the use of microbes in food and dairy manufacturing and to clean contaminated soil and water. Since 2000, our department has received $60 million in grants from the National Institutes of Health and the National Science Foundation to study infectious diseases caused by microorganisms.

According to some estimates, less than 1 percent of all microbe species on Earth have been studied—leaving so much more to explore.

INSIDE THE CLASSROOM
Learn fundamental laboratory skills like breaking apart a microbe, identifying microbes from a disease culture, and manipulating microbial growth. Observe and collect information about microbes as they change and interact with each other and the environment. Senior year, you will draw on everything you've learned when you design and carry out your own research project. You will receive guidance from a professor and present your findings at a poster competition.

OUTSIDE THE CLASSROOM

INTERN. Get practical experiences like these: DAIRY Learn how packaging prevents microbial growth . . . PHARMACEUTICAL COMPANY Analyze how a vaccine affects microbial pathogens . . . ENVIRONMENTAL PROTECTION AGENCY Study the effects of fungi on plant health.

STUDY ABROAD. Deepen your understanding of your major—and the world—in countries like these: SPAIN Take science classes in Spanish . . . SWITZERLAND Observe a different health care system . . . MEXICO Study how disease is managed in rural villages.

DO RESEARCH. Work for pay or credit in an on-campus laboratory. Conduct lab procedures and collect findings. You might help identify cattle management practices that keep *E. coli* 0157:H7 out of food, develop reactors for microbial degradation of TNT, or study how the composition of microbes in the human intestine influences a person's susceptibility to disease.

VOLUNTEER. Give back. Assist hospital medical staff as they care for patients. Treat sick pets at a veterinary clinic. Work at a clinic in a developing country.

GET INVOLVED. Network and have fun. MMBB CLUB Teach lab techniques to school children, learn more about internships, and meet experts in the field. Take trips to biotech companies, breweries, research centers, and hot springs . . . PRE-VET CLUB Meet other students planning on vet school and volunteer at a horse sanctuary . . . UI ENVIRONMENTAL CLUB See what you and others can do to live more sustainably.

FASTFACT

Microbes produce vitamins in our intestinal tracts and strengthen our immune systems.

CAREER OPPORTUNITIES
Demand for our graduates is high. Work for biotechnology or pharmaceutical companies or for the agricultural industry. Conduct research in university or government laboratories. Salaries start as high as $50,000.

Here are a few possibilities:

MEDICAL RESEARCHER. Study the role of microbes in human illness. Design and synthesize new drugs and delivery systems. Study how drugs affect their microbial targets.

VIROLOGIST. Shed light on biological viruses and virus-like agents, including their structure, their classification and evolution, the diseases they cause, the techniques to isolate and culture them, and their potential uses in research and therapy.

INDUSTRIAL MICROBIOLOGIST. Contribute to industrial processes—such as food processing and waste handling—by monitoring microbes in activities such as fermentation and wastewater treatment.

ENVIRONMENTAL MICROBIOLOGIST. Contribute to the understanding of the function and diversity of microbes in the natural environment. Work on bioremediation projects in soil, groundwater, and open oceans.

COMBINE YOUR EDUCATION. Take additional courses in a foreign language, plant or animal science, law, engineering, soils, agribusiness, or economics.

CONTINUE YOUR EDUCATION. Many of our graduates go on to medical, nursing, dental, pharmacy or veterinary schools or earn advanced degrees in medical technology or microbiology.

FIND OUT MORE ABOUT THE UNIVERSITY OF IDAHO MICROBIOLOGY MAJOR
WWW.CALS.UIDAHO.EDU/MMBB

MICROBIOLOGY

4-YEAR PLAN 2008-09

FALL

FRESHMAN		SOPHOMORE		JUNIOR		SENIOR	
Chem 111 Principles of Chemistry I	4	**Chem 253** Quantitative Analysis	5	**Biol 210** Genetics	4	**MMBB 400** Seminar	1
CORE 103-149 Core Discovery Course	4	**MMBB 250/255** General Microbiology/Lab	5	*or* **Gene 314** General Genetics	3	**MMBB** Elective—Microbiology	3
Engl 102 College Writing & Rhetoric	3	**Phys 111** General Physics I (with lab)	4	**Chem 372** Organic Chemistry II	3	**MMBB** Elective—Molecular Biology	3
Math 143 Pre-calculus Algebra & Analytic Geometry	3	*or* **Phys 211** Engineering Physics I (with lab)	4	**MMBB 380** Introductory Biochemistry	4	**Electives** Electives	9
Elective Elective	3	**Elective** Elective—Core	3	**Elective** Elective—Core	3		
				Elective Elective	3		
TOTAL	17	**TOTAL**	17	**TOTAL**	16-17	**TOTAL**	16

SPRING

Chem 112 Principles of Chemistry II	5	**Chem 277/278** Organic Chemistry I/Lab	4	**MMBB** Elective—Microbiology	3	**MMBB 440** Advanced Lab Techniques	4
CORE 153-199 Core Discovery Course	3	**Engl 207** Persuasive Writing	3	**MMBB** Elective—Molecular Biology	3	*or* **MMBB 401** Undergraduate Research	4
Math 160 Survey of Calculus	4	*or* **Engl 208** Personal & Exploratory Writing	3	**Stat 251** Statistical Methods	3	**MMBB** Elective—MMBB	3
or **Math 170** Analytic Geometry & Calculus	4	*or* **Engl 209** Inquiry-Based Writing	3	**Elective** Elective—General International	3	**Elective** Elective—Science	3
MMBB 154 Introductory Microbiology	3	*or* **Engl 317** Technical Writing	3	**Elective** Elective—Science	3	**Electives** Electives	6
Elective Elective	3	**Phys 112** General Physics II (with lab)	4				
		or **Phys 212** Engineering Physics II (with lab)	4				
		Elective Elective—Core	3				
		Elective Elective	3				
TOTAL	18	**TOTAL**	17	**TOTAL**	15	**TOTAL**	16

Total for degree = 128 credits. Course offerings may change from year to year. Always check the current course catalog.

"In the lab, I do things like washing and sterilizing glassware, preparing and sterilizing media, and keeping our laboratory clean and organized. I have also been able to develop my own hypotheses and design experiments to test them."

AMY WINEGARDNER, *microbiology major*

TO LEARN MORE
toll free 1.88.88.uidaho
1.888.884.3246
www.uidaho.edu

CALS STUDENT RECRUITER
208.885.7984
aginst@uidaho.edu
www.cals.uidaho.edu

DEPARTMENT OF
MICROBIOLOGY, MOLECULAR
BIOLOGY AND BIOCHEMISTRY
208.885.2821
mmbb@uidaho.edu
www.cals.uidaho.edu/mmbb

University of Idaho
College of Agricultural and Life Sciences