

Biology 318 - Microbiology for the Health Sciences

Biology 318 provides an introduction to the biology of microorganisms with an emphasis on infectious human diseases, immunology, and the control of disease through antimicrobial strategies and vaccination. Designed for students interested in pre-nursing, pre-dental hygiene, and entry level positions in public health laboratories. Laboratory emphasizes skills with microscopes, identification testing, and aseptic technique. Not open for credit to biology majors. Pre-requisites: Biology 102 (introductory cell biology and genetics).

Required Text

Microbiology for the Health Sciences (7th Edition) by Burton/Engelkirk - NO OLD EDITIONS

Your text is cheap because it contains few images. My lectures contain copyrighted images from a variety of websites (most CDC/PHIL); many are objectionable and graphic.

Professor

Dr. Sarah Boomer

Office: NS219; T/R 1-2, M 11-12 or by appointment

Contact me: phone (8-8209) or email (boomers@wou.edu)

Lecture and Lab Schedule

Lecture: T/R, 2-3:30 in NS101

Lab Times: T or R, 3:30-5:30; or R 10-12 - all in NS201

Lecture Exams

There are two in-class lecture/lab exams, and a non-comprehensive lab/lecture final. Exams cover ALL material in your lecture notes and labs. 50% exams are multiple choice (i.e. bring scantron); 50% are definition or problem-based. If you miss an exam because of a university-sanctioned event, you are required to notify me one week in advance. If you miss an exam because of a medical or family emergency, you MUST communicate this to me and all your professors through the Office of Student Affairs (838-8221). Make-up exams will involve different all long-answer essay formats.

Grading

2X125 pt. in-class exams 150 pt. final exam	8X25 pt. lab worksheets = 200	A = 90-100%; B = 80-89% C = 65-79%; D = 55-65% F = 54% or less
Total = 400 pts	Total = 200	Grand Total = 600

Syllabus - Winter, 2006

Date	Lecture	Text	Lab
T 1/10	Syllabus/Introduction	1	1. Basic Techniques/Tools
Th 1/12	Cell Structures and Taxonomy	3, 6	
T 1/17	Virus Diversity and Virus-Like Bacteria	4, 6	2. Metabolism/Diversity
Th 1/19	Eukaryotic Diversity	5, 6	
T 1/24	Genetics	7	3. Cell Structures
Th 1/26	Microbial Evolution and Disease		
T 1/31	Exam - Intro. to Genetics, Labs 1-3		4. Microbial Control
Th 2/2	Microbial Control	8, 9	
T 2/7	Normal Flora and Nosocomial Infections	10, 12	5. Gram (+) & Diagnostics
Th 2/9	Defenses and Immunology	15, 16	

T 2/14	Applied Immunology - Vaccines	15, 16	6. Enumerating Microbes
Th 2/16	Epidemiology and Ebola	14	
T 2/21	Pathogenesis and Virulence Factors	11, 13	Enumeration Follow-Up
Th 2/23	Skin Diseases and STD's	17, 18	
T 2/28	Bite-Mediated and Bug Diseases		7. Insect-Borne Diseases
Th 3/2	Exam - Control to Virulence, Labs 4-5	17, 18	
T 3/7	Respiratory Diseases	17, 18	8. Gram (-) & Diagnostics
Th 3/9	Bacterial GI Diseases	17, 18	
T 3/14	Non-Bacterial GI Diseases	17, 18	9. Wrap-Up
Th 3/16	Small Multicellular Parasites	17, 18	
	Final - Skin to Parasites, Labs 6-9		

Lab Information

Because you are seeking careers that require demanding schedules and hands-on skills, it is not appropriate to miss lab and no alternative assignments will be provided. If a university-sanctioned event falls on your lab day, you need to attend one of the other labs. In lab, you will be working and turning in weekly assignments with a partner. If you miss a lab, it is still your responsibility to master missed material by studying handouts and keys. On exams, you will be expected to sight-recognize organisms and structures viewed during lab and test media you worked with (i.e. I project pictures during exams for you to identify). Calculations will be tested over so make sure you can do math problems. Each lab worksheet is due 1 week after that lab was set up and no late assignments are accepted (late = after the end of your lab). Keys for labs are posted on the website the weekend after a lab worksheet is due and these should be consulted in the event you missed a lab or did not get full points on the assignment.

Safety and Rules in the Lab

In this lab, you will - after practice sessions - handle some known pathogens (e.g. Staphylococcus aureus and Salmonella typhimurium). You may also encounter unknown pathogens from personal swabs (nose and skin) and grocery store items. The following regulations will be applied at all times in order to prevent contamination, to promote personal safety, and to teach you how to work in real environments where pathogens are encountered. Misconduct or failure to abide by safety rules in lab will result in expulsion and course failure.

Absolutely no drinks or food in lab. No gum-chewing, nail-biting, or nibbling pens/pencils.

Follow all guidelines for labeling materials and keep records of what you generate. I DO NOT keep records of your materials and labeling schemes. It is recommended you organize all lab handouts in a personal lab notebook - which you bring to every lab session.

Bring handouts, your course text, a pen/pencil, and a calculator to lab. Store all other items in the shelf beneath the lab benches or against the walls - NOT on the floor, NOT near research equipment, and NOT in your work area where they could become contaminated.

Wash desktops with 10% bleach at the beginning and end of lab. Wash hands at the beginning and end of lab, and before/after using the restroom.

Be careful with Bunsen burners. Turn off at end of class.

Follow appropriate sterile technique when handling ALL materials in lab.

Handle materials with care and don't waste anything. If you spill a live culture, there will not be a back-up available. If you spill or break contaminated materials, follow these procedures:

For injuries, stabilizing bleeding and clean wound first
Disinfect spill by soaking with bleach for at least five minutes
Alert me while spill is disinfecting and I will direct further clean-up

Microscopes and prepared slides will be checked following use; misuse/breakage will incur a loss of points.

Avoiding moving microscopes; if you have to, use both hands, carrying upright and gently
Store microscope covered with lowest power down when finished
Wipe away all oil from lenses with special lens paper
Wipe oil from stage with Kimwipe tissues on bench, using small amounts of lens cleaner
Use tissue paper and lens cleaner to clean oil from prepared slides
Return prepared slides to front of room when finished and clean

Microscopes cost \$150 to repair if misused. A new scope would cost \$1500. Every prepared slide costs \$10-20. These values are MORE than your lab fees - RESPECT the equipment.

Small amounts of trash or waste (e.g. used disposable pipettes) go in the designated waste bucket on your bench. Used or contaminated plates, tubes, or flasks go on the "autoclave cart" by the front bench. NOTHING goes in the general trash.

Equipment that can be flame/alcohol sterilized at the bench (e.g. loops, forceps, dally rods) are kept in white trays on your bench after you have appropriately decontaminated them.

Thank you in advance for following these necessary rules.