

BIOL 320: MICROBIOLOGY

Fall 2014

Lecture: M/W/F 11:00 – 11:50 AM, 101 Kellas Hall
Laboratory: Th 1:00 – 3:50 PM or 5:00 – 7:50 PM, 214 Stowell Hall

INSTRUCTOR:	Dr. Gordon Plague
OFFICE HOURS:	Mon 12:00 – 2:00 PM, or by appointment
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REQUIRED TEXT:	Madigan MT, et al. 2015. Brock Biology of Microorganisms. 14 th ed. Pearson, Boston, MA (ISBN: 0321897390).
REQUIRED FOR LAB:	Microbiology Lab Manual, available in SUNY Potsdam bookstore.

CATALOG DESCRIPTION

Morphological, physiological, genetic, and biotechnological concepts of bacteria, fungi, and viruses. Laboratory emphasizes sterile culture techniques and current technology.

STUDENT LEARNING OUTCOMES

Upon completion of this class, students will be able to: (1) understand the basic biology of Bacteria, Archaea, & viruses (including their evolution, ecology, cell biology, morphology, & molecular genetics), (2) explain the dynamics of commensal & pathological relationships between microbes & humans, (3) retrieve, evaluate, & use microbiological information that is relevant to their everyday lives, (4) correctly perform microbiological lab skills & display a habit of good lab practices.

COURSE POLICIES

1. **Overall structure:** Our class meetings will generally follow a lecture format, though I hope and expect that these lectures will be interactive, with you asking questions pertinent to the day's lecture topic, and answering questions that I pose to you. I strongly believe that participation and discussion will improve your understanding of the material.
2. **Text readings:** All reading assignments are highly recommended. Ideally, you should read the material before the corresponding class.

3. **Communication:** The best time to talk to me is after class or during office hours. Email should be reserved for brief communications. Please use the email etiquette rules that I posted on the Moodle site. If you do not use these rules, you probably will not get a reply.
4. **Academic integrity:** I will adhere to SUNY Potsdam's Academic Honor Code, which you signed after arriving on campus. Violations of any sort will not be tolerated. I expect you to be honorable and do your own work. If I suspect any dishonesty, I will bring the evidence to the attention of the student as well as to the Student Conduct office.
5. **Extra credit:** You may earn extra credit by attending Biology Department seminars (Wednesday or Friday 12:00). To get credit, you must handwrite a one-paragraph summary and hand it in directly to me as you are leaving the seminar. These will not be accepted later. Each summary can earn you 3% on one of your exams. If you have a class conflict with the time of the seminars, come see me two days before the seminar and an alternative will be provided which will also be due on the same day as the seminar. No other extra credit will be offered during the semester.
6. **Studying:** How should you study for this course? Go over your notes after each lecture while the material is still fresh in your mind. Although some memorization is invariably necessary when learning a new "language", the goal of learning is to understand the information, not to simply memorize a bunch of disconnected facts. A major purpose of studying is to discover what you don't understand so that you can do something about it. Don't just passively read the notes, think about them and ask yourself questions about them. Do you understand what was said? Does it make sense and why? Compare and contrast the new information with things that you have already learned. Some people find study groups very helpful for the learning process. Keep up regularly. You can't cram all of the information into your brain the night before an exam, and I may not be available to answer your questions at the last minute. As a rule of thumb you should spend a minimum of 2 hours studying outside of class each week for every credit hour.
7. **Your grade:** You will receive one combined grade for lecture and lab. Your lecture and lab grades will comprise 80% and 20%, respectively, of your final grade. Your lecture grade is based on 4 exam scores (20% each), a Microbiology Fact or Fiction report (10%) & presentation (5%), and class attendance (5%).

Exams:

(1) Exams will consist of multiple choice, fill in the blank, true/false, and short answer essay questions. The exams will exclusively cover topics that we cover in class (lecture or lab). All exam questions will be taken directly from the lectures. The information may be directly on slides, or it may be something I say; anything I say during class is fair game. My recommendation for studying for each lecture: (1) skim over the assigned reading before class so you know what's coming, and look at the figures & tables (spend 15-20 min); (2) come to class, pay attention, and take notes; (3) I'll send you the slides each day; within 24 hrs of each lecture, read over the lecture slides & your notes, and jive them; (4) read the sections of the text that are pertinent to what we talked about (be aware that I will often add info that's not in the text, so you'll have to come to class & pay attention).

(2) Failure to appear at exam time without 24 hours prior notice to instructor with an appropriate excuse, or an appropriately documented emergency, will result in zero points for that exam. *Make-ups will not duplicate regular exams and will be harder.* To be fair to everyone in the class, there are no exceptions to this policy.

(3) All electronic devices are prohibited during exams, including cell phones.

(4) Students may not leave the room during exams. Lecture periods are only 50 minutes in length and I expect you to use the baño before coming to class. If you have a medical condition that does not allow you to sit through a 50 minute exam, please arrange to take the exam at Accommodative Services.

(5) The final exam is just the last exam, and as such is not cumulative.

Microbiology Fact or Fiction report & presentation:

Each student will be assigned a microbiology topic that you may have heard reported by popular media sources or proclaimed in advertisements; some are microbiology “urban legends” that you might have heard from friends or relatives. You will investigate this topic and write a report (see Microbiology Fact or Fiction assignment for details). You will also present a brief seminar (~10 minutes) to the rest of the class about your topic.

Microbiology Fact or Fiction due dates:

- **10/16/14**: email me pdfs of the 4 papers you plan to review for the report, as well as a 1-2 sentence justification as to why each paper will be included in the report (i.e., how does each paper inform your topic?). Again, you must send me the pdfs – not just embedded URLs in a Word document. This will comprise a portion of your report grade, and you cannot turn in a report unless you do this portion of the assignment. I will not accept late work under any circumstances.
- **11/21/14**: completed Microbiology Fact or Fiction report (due in class). Again, I will not accept late work under any circumstances.
- **12/4/14 & 12/11/14**: Microbiology Fact or Fiction presentations (in lab).

Attendance:

Attending class will greatly improve your comprehension of the material and is therefore strongly recommended. I will pass around a sign-in sheet each class. It is your responsibility to sign the sheet. Signing the name of another student is considered cheating, and if caught, will result in a zero in this portion of the grade for you and the person you are signing for. Everyone will get four “free” absences; every absence thereafter will result in a 10% reduction in this portion of your grade.

Lab:

Participation in laboratory activities is an important aspect of this course. Therefore, attendance is required for each lab meeting. If you are unable to attend lab, or a portion thereof, you are expected to contact me *prior* to class to schedule a make-up. Every absence up to 3 absences will reduce your lab grade by 10%. If you miss more than 3 lab meetings, you will fail the class.

Final grades: Will be based on the following percentages:

≥90.00	4.0 = A (Excellent)
≥86.67 and <90.00	3.7
≥83.33 and <86.67	3.3
≥80.00 and <83.33	3.0 = B (Good)
≥76.67 and <80.00	2.7
≥73.33 and <76.67	2.3
≥70.00 and <73.33	2.0 = C (Satisfactory)
≥66.67 and <70.00	1.7
≥63.33 and <66.67	1.3
≥60.00 and <63.33	1.0 = D (Minimum)
<60.00	F

SPECIAL REQUESTS

1. Arrive to class on time.
2. Please sit in the back row of the classroom if you choose to:
 - text
 - sleep
 - play games/surf the web on an electronic device

SCHEDULE

(tentative & subject to change)

Wk	Date	Topic	Chapters
1	9/1	Introduction to Microbiology	1
	9/3	Cell Structure & Function	2
	9/5	Cell Structure & Function	
2	9/8	Cell Structure & Function	
	9/10	Nutrition & Microbial Growth	3 (73-78), 5
	9/12	Microbial Growth	
3	9/15	Molecular Microbiology	4
	9/17	Molecular Microbiology	
	9/19	Molecular Microbiology	
4	9/22	Molecular Microbiology	
	9/24	Exam 1	
	9/26	Regulation of Gene Expression	7
5	9/29	Regulation of Gene Expression	
	10/1	Discuss writing assignment (mandatory attendance)	Pechenik, Ch. 3 & 7
	10/3	Bacterial Genetics	10

6	10/6 10/8 10/10	Plasmids Microbial Genomics Microbial Genomics	4 (114-115) 6
7	10/13 10/15 10/17	Fall Recess - University Closed Archaea Eukaryotic Microorganisms	 16 17
8	10/20 10/22 10/24	Exam 2 Viruses Viruses	 8
9	10/27 10/29 10/31	Prions Genetic Engineering Evolution Primer	9 (286-287) 11
10	11/3 11/5 11/7	Microbial Evolution The Origin of Life The Origin of Life	12 12 (348-359)
11	11/10 11/12 11/14	Antibiotics & Antimicrobial Control Antibiotics & Antimicrobial Control Exam 3	5 (171-178), 27 (811-824)
12	11/17 11/19 11/21	Video: <i>"Hunting the Nightmare Bacteria"</i> Microbial Ecology Human-Microbe Interactions Microbiology Fact or Fiction reports due in class	 19 23
13	11/24 11/26 11/28	Human-Microbe Interactions Thanksgiving Recess - University Closed Thanksgiving Recess - University Closed	
14	12/1 12/3 12/5	Person-to-Person Diseases Person-to-Person Diseases Person-to-Person Diseases	29
15	12/8 12/10 12/12	Vectorborne Diseases Vectorborne Diseases Vectorborne Diseases	30
16	12/17	Exam 4 (2:45 - 4:45 PM)	
