

MICROBIOLOGY-BIOLOGY 358

Fall 2013

Welcome to Introduction to Microbiology! If there was ever a topic that needs no added hype to make it interesting, it's microbiology. The ever-expanding body of knowledge in this broadest of fields could take years to cover, and we have only a semester. We will overview as much as possible, with an emphasis on human/microbe interactions. I will try to stay out of the way and let the fascination of the topics themselves shine through.

I approach this class as a learning partnership. Lectures can be useful, but I won't always be around, so you need to know where resources are, and how to apply the knowledge you obtain. To enhance your skills of critical thinking and analysis, we will do a combination of activities including study guides, quizzes, exams, reading of primary and secondary journal articles, oral presentations, and some writing assignments. In addition, you will directly experience "microbiology" in the lab!

This class is the beginning-of the rest of your life. When we convene for the last time at the end of the semester, my ultimate goal is that you will walk away having found this to be a highly positive and memorable class that will enhance your daily life as well as help you achieve the next step in your career, whatever that may be.

With the above thoughts and activities in mind, here is a more specific list of some of the learning goals, objectives of the course, and topics I hope we can learn about together:

- Learn some of the basic factual knowledge, theories and models in microbiology in a variety of areas including virology, bacteriology, parasitology, mycology and immunology
- Find where to go for general and specific resources for microbiology
- Be able to answer: What is a virus? Are all bacteria pretty much alike?
- Exposure to some fun/unusual microbes
- Why are microbes interesting?
- How do microbes affect our daily lives?
- Is there anything good about microbes? (or, is there such a thing as a "good microbe"?)
- How do humans try to control microbially-caused disease?
- General understanding of how microbes are studied (techniques; fields like infection, genomics, epidemiology)
- Appreciation of what questions and discoveries still remain in microbiology
- Know how to read a 1^o paper
- Learn some of the laboratory skills used in microbiology
- Improve your skills in doing independent projects (ex: your unknown in lab)

Upon completion of this class, you should have a solid foundation in the "basics" of microbiology as well as exposure to emerging and current topics. Even though we know a lot in the field of microbiology, an overriding theme should be recognizing how much more is yet to be discovered!

Book and Preparation for Class: The book we will use is Foundations in Microbiology by Talaro, 8th ed. The goal of class time will be to emphasize the main points, go over difficult concepts, and discuss some cool stuff. Also, beginning about halfway through the semester, we will allocate time on Fridays and during lab for each of you to present a 10' talk on the topic of your choice. This gives you a chance to pursue something of interest to you, and will enlighten us all on subjects above and beyond our text.

You will be expected to read the book AHEAD of class, with the readings listed in the class syllabus, and most of the assignments (ex: study guides) will be expected to be completed ahead of class so you will be prepared for discussion that will take place, and to help in your comprehension of the topics covered. As for outside effort, it is generally assumed in biology classes that you will put in a minimum of 3 hours of work outside class for every hour in class; it will probably be more than that. **Studying:** If I can offer one piece of advice in studying/preparing for class, it would be to **study with others**. You will gain different perspectives, find answers you don't know, and prove to yourself that you understand something by being able to explain it to someone else. Above all, you will gain a sense of community that is what makes the experience of being human so uniquely wonderful!

Grading: Always a topic of interest, it will be approximately as follows, with number of points shown and estimated % of grade in parentheses:

Exam 1	80 (11%)
Exam 2	80 (11)
Exam 3	80 (11)
Exam 4	80 (11)
Final exam (cumulative)	110 (14)
Unknown lab exercise	120 (15)
Lab practical exam	80 (11)
Other: lab write-ups/quizzes, etc.	~80 (11)
Total:	~700

Class participation: In addition, because I encourage discussion in class, your active participation will round up any close grade to the next 1/2 grade.

Quizzes, Exams, and Assignments

NOTE: For any graded work, if you are going to miss, you need to let me know ahead of time by either phone (x6444) or email (sundby@macalester.edu), or you will lose 25-100% of the points.

Quizzes: Quizzes are an attempt to break up "the facts" into know-able sections. They will be on lecture material, but given at the beginning of lab starting next week. Quizzes will be worth 10-20 points, take about 10 minutes, and will be primarily factual in their content.

Exams: They will be in class, one hour maximum. Exams will cover factual information, but will also include more application/problem-solving than quizzes. The final exam will be cumulative.

Academic Integrity: All students will be required to abide by the Macalester College academic integrity guidelines found at <http://www.macalester.edu/academicprograms/integrity.html>. Instances of suspected academic dishonesty (cheating, plagiarism, and using the same paper in more than one course) will be handled as outlined in the College guidelines.

Laboratory: Lab will be conducted on Tuesday morning from 8:00-11:10 (Olin/Rice Hall, Room 285) and Tuesday afternoon from 1:20-4:30 pm (Olin/Rice Hall, Room 289), with additional outside time expected.