

**Biology 301: Microbiology**  
**Syllabus**  
**Fall 2006**

Dr. Mary E. Miller  
 FJ 104W  
 843-3556  
 millerm@rhodes.edu

<b><u>Day</u></b>	<b><u>Date</u></b>	<b><u>Topics/Important Points</u></b>	<b><u>Evaluation</u></b>	<b><u>Reading</u></b>
		<b>Cellular Structure and Genetics of Microorganisms</b>		
W	<b>Aug 23</b>	Introduction to the Course and the Study of Microbes		
F	25	History of Microbiology		CH 1, 2
M	28	Microbial Growth		CH 6
W	30	Macromolecules	Pick Adopted Microbes! Handout Quiz 1	
F	<b>Sept 1</b>	Bacterial Genetics- movement of DNA	Quiz 1 Due	CH 3
M	4	Labor Day – NO CLASSES		
W	6	Bacterial Genetics- regulation of gene expression/transcription		CH 10
F	8	Bacterial Genetics- regulation of gene expression/translation	Handout Quiz 2	CH 7, 8
M	11	Microscopy/Cell Structure	Quiz 2 Due	CH 4
W	13	Microbial Motility		CH 4
F	15	External Structures of Microorganisms	Adopted microbe summary	CH 4
M	18		<b>EXAM 1</b>	
		<b>Metabolism and Growth of Microorganisms</b>		
W	20	General Bacterial Metabolism		CH 5,17
F	22	Bacterial Metabolism		CH 5,17
M	25	Bacterial Energy Flow	Handout Quiz 3	CH 5,17
W	27	Photosynthesis	Quiz 3 Due	CH 5,17
F	29	Microbial Habitats		CH 19, 28
M	<b>Oct 2</b>	Controlling cellular growth with physical and chemical agents		CH 20
W	4	Antibiotics/antimicrobial drugs	Handout Quiz 4	CH 20
F	6	Antibiotics/antimicrobial drugs	Quiz 4 Due	CH 20
M	9	Adopted Microorganism Roundtable	Adopted microbe summary	
W	11		<b>EXAM 2</b>	
		<b>Microbial Diversity</b>		
F	13	Microbial Habitats/Phylogeny/Microbial evolution		CH 2,12
M	16	Fall Recess		CH 12

W	18	Prokaryotic Diversity: <i>Bacteria</i>	Handout Quiz 5	CH 12
F	20	Prokaryotic Diversity: <i>Archaea</i> Extremophiles – Microorganisms in space	Quiz 5 Due	CH 13
M	23	Eukaryotic microorganisms		
W	25	Viral classification	Quiz 6 Due	CH 14
F	27	Viral replication	Adopted microbe summary	CH 9,16
M	30		<b>EXAM 3</b>	
<b>Pathogenic Microorganisms</b>				
W	<b>Nov 1</b>	Ebola: The Plague Hunters Documentary		
F	3	Pfeisteria – Ecological Perspectives		
M	6	Host Defenses/Virulence Factors		CH 26
W	8	Airborne transmission – corynebacterium, bordetella, mycobacterium Sexual/direct contact transmission – gonorrhoea, syphilis, AIDS, hepatitis, staphylococcus, helicobacter pylori	Handout Quiz 7	
F	10	Arthropod transmission – Plague, Malaria, Lyme, Rickettsial	Quiz 7 Due	CH 26
M	13	Animal transmission Soil transmission	Handout Quiz 8	CH 27
W	15	Waterborne microbial diseases	Quiz 8 Due	CH 28
F	17	Foodborne microbial diseases		CH 29
M	20	Bioterrorism	Adopted microbe summary	CH 26
W-F	22-24	Thanksgiving Break		
M	27	Adopted Microorganism Student Presentations		
W	29	Adopted Microorganism Student Presentations		
F	<b>Dec 1</b>		<b>EXAM 4</b>	
M	4	Adopted Microorganism Student Presentations		
W	6	Adopted Microorganism Student Presentations		
		Cumulative Final	<b>FINAL</b>	

The schedule listed in this syllabus is tentative, and may be changed to accommodate the specific pace of the class, and timely topics that might arise through the semester.

**GRADING POLICY:**

There will be a total of **600** possible points in the class:

1. **240 points** (60 pts each) will come from the first four Exams. Exams will be in class and closed book. They will be both objective (short answer, multiple choice, graphs, matching, problem solving) and subjective (essay). In some cases, the essay portion of the exam will be taken out of class, but will remain closed book/closed notes. Make up exams will not be offered, unless extreme circumstances exist.

To allow for some adjustments on your part to my teaching style, possible sickness, or the occasional “bad day” that might influence one of your test grades, you will be allowed to replace one of your test grades with *the average of* the equivalent percentage values of the test grade and the cumulative final.

2. **80 points** will come from the cumulative final. The final exam will be a comprehensive, closed-book, timed exam that covers material from the first four exams. No make-up final exams will be given.

3. **40 points** (5 points each) will come from Quizzes and Seminar summary paragraphs. The points will come from the 7 highest quiz scores and 1 seminar lecture summary. Quizzes will be taken outside of class. They are due at the beginning of the following lecture period, and will not be accepted late. One page summaries describing departmental seminars will be accepted up to one week after the date of the seminar. These summaries should be single spaced, and include a description of the work described by the speaker – how and why the work was done. This summary should contain details about experimental method and conclusions.

4. **40 points** will come from written summaries and oral presentation describing specified features of your adopted microorganisms. You will choose one organism to “adopt” at the beginning of the course, and use this as the basis of your summary paragraphs and discussions. You are expected actively participate in oral discussions throughout the semester about the “adopted” microorganism. You will pick one aspect of one microorganism to share with the class in an oral presentation during the last week of class. You will give a brief (4 minutes) description of your microorganism, focusing on some unique aspect that you think the class might find interesting. This description should have scientific merit. Each write up will count as 10 points (the three highest will be graded); and your oral presentation will count as 10 points.

5. **200 points** will come from your Laboratory grade.  
The laboratory grade is explained in the laboratory syllabus.

6. **The honor code applies to all work done in this course.**

7. Your first three absences from the class will be excused. **The fourth absence will result in a 10 POINT REDUCTION from your total points in the course.** Two additional absences (at total of six) will result in an additional 10 point reduction from your total points in the course. Further absences will result in further penalty of points at the instructor's discretion. **If you are unable to attend classes or laboratory on Fridays because of extracurricular activities, you should not take this course.**

No laboratory or lecture reports or exams may be turned in beyond the scheduled time unless medical or personal emergency warrants it. In such cases, the professor must be consulted for approval **prior** to the deadline or as soon after as possible. In some cases, students may obtain permission from the professor to complete an assignment prior to the scheduled deadline. Missed assignments for unexcused reasons will receive a grade of 0. This policy holds true for laboratory assignments as well as Lecture exams, quizzes, and written assignments. The cumulative final in the laboratory is a practical exam, meaning that in addition to testing knowledge and synthesis of content presented in the laboratory exercises, the student will be required to carry out some physical aspects of the laboratory exercises (ie, streaking plates, staining cells, identifying organisms). For this reason, no makeup will be available for the cumulative laboratory final. Please plan ahead so that you will not miss this date.

8. You are expected to get to class on time. **If you are late to class three times, this will be considered the equivalent of one absence** (see 7 above). Further tardiness will result in further penalty of points at the instructor's discretion.

9. This syllabus is tentative, and may be altered as needed to accommodate specific needs of the instructor and students.

**This Grading Policy is summarized below:**

Lecture	
4 exams	240 points
Cumulative final	80 points
Quizzes/Seminar Summary	40 points
Adopted Microbe	40 points
Laboratory	<u>200 points</u>
	600 points

**Grading scale:**

<u>Points</u>	<u>Grade</u>
558-600	A
540-557	A-
522-539	B+
498-521	B
480-497	B-
462-479	C+
438-461	C
420-437	C-
402-419	D+
378-401	D
360-377	D-
359 and below	F

**Resources for this course:**

- Lectures** — Lectures are aimed at explaining the material, showing you problem solving strategies, and helping you to focus on the concepts that are emphasized in the course. You are responsible for material covered in the lectures as well as specified reading assignments. Selected **PowerPoint presentations** from lectures will be put on the academic volume and you are encouraged to download these presentations prior to class.
- Office hours** are immediately after lecture, MWF from 11:00 to 12:00 – though I encourage students to come by my office and lab throughout the week if they have questions about any aspect of the course.
- Textbook** — Brock Biology of Microorganisms. Eleventh Edition. Madigan, Martinko and Parker. Prentice Hall Publishing.
- Additional reference materials will be available in the Microbiology laboratory.