

BIOL 371 General Microbiology- Fall 2009 Course Syllabus

Class time and location: M 1-1:50 Holt 309 , 2-4:50 holt 337 and W 1:00-4:50, Holt 337

Instructor Information: Dr. Andrea White, office Holt 301J

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Office hours: T W 9-10, F 9-12

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Overview and Objectives: This 4-unit class surveys the microbial world, including a comprehensive look at diversity, physiology, genetics and metabolism. Additional topics to be discussed are: applied microbiology of prokaryotes, medical microbiology, human-microbe interactions, microbial ecology and biogeochemical cycles. Students will learn essential laboratory techniques to grow and study both prokaryotic and eukaryotic microorganisms. Students will also develop skills in comprehension and communication of scientific studies. **This course is intended for Biology, Microbiology and Biochemistry majors. All other majors should take BIOL 211 (Allied Health Microbiology).**

Prerequisites: Biology 151, 152, one year of general chemistry, and a semester of organic chemistry. Math background should include scientific notation, logarithms, and basic algebra.

This is a Writing Proficiency (WP) course, open only to students who have completed ENGL 130 (or its equivalent) with a grade of C- or higher. As a writing proficiency course, students are required to practice written and oral communication skills as well as comprehension of scientific literature to develop competence in each of these areas. **Students must receive a grade of C- or above (70%) in this course to receive writing proficiency status.**

Learning Outcomes: At the conclusion of this course, students should be able to:

1. demonstrate knowledge of microbial cell structure and metabolism;
2. demonstrate knowledge of microbial evolution and diversity;
3. demonstrate knowledge of microbial interactions with their environment, including humans;
4. demonstrate ability to manipulate microbes in the laboratory, including aseptic, enrichment & culturing techniques, microscopy, and biochemical and genetic analyses;
5. demonstrate an understanding and ability to use the scientific method including observation, hypotheses testing, data collection, and analysis.
6. communicate the results of scientific investigations, both orally and in writing.

Assignments / Grading: 500 points total

	points	% of total grade
Midterm 1	70	14%
Midterm 2	70	14%
Final exam	70	14%
Journal article assignments	45	9%
El paper (25) and notebook (25)	50	10%
Microbe collection paper (35) /notebook (25)	60	12%
Term project presentation	50	10%
Hatpick paper (25) /presentation (25)	50	10%
Growth curve assignment	25	5%
Lab participation	10	2%

Grading: A=90-100%; B=80-89%; C=70-79%; D=60-69%.

Exams: Three midterms will be given on the dates indicated in the course schedule. No makeup exams will be given. If you know you must be absent due to a valid excuse, arrangements must be made prior to the exam to take it at a different time.

***Note-An unexcused absence resulting in a missed exam or assignment will result in a zero for that exam or assignment.**

Labs: Labs will be done individually, in pairs, and in groups of 4. Lab will consist of 3 major projects: an environmental isolate, with write-up and notebook; a microbe collection, with notebook and writeup; and a term project, with oral presentations to be presented during the final period of the semester.

Writing and Presentation Assignments: In addition to the above lab projects, students will read and analyze 3 scientific journal articles that will be announced in class. Students will also use library resources to research a pathogenic microbe of their choice and to prepare both a research paper and an oral presentation about this microbe.

Late Assignments: Assignments will be accepted late only with a valid excuse and prior permission from the instructor. All late assignments will be docked 10% of the point value earned per day late. No assignments will be accepted later than 1 week past the due date.

Attendance of lab is mandatory. More than 4 absences without instructor's permission will result in failure of the course.

Required text and other materials:

1. Madigan et al. Brock Biology of Microorganisms: 12th edition. Available in the bookstore, on Amazon.com, or www.Campus.com

All readings, except for the first day, are to be done **BEFORE** class. Students should come prepared with questions about reading material. The course moves quickly and covers a huge amount of material – keep up!

2. Lab notebook (BMU Bookstore): purchase one of following during lab #1:

Roaring Springs 4x4 quad ruled lab notebook (preferred).....\$11.95
Roaring Springs 8x11 lab notebook (blue cover)\$5.95
Amrad 5x5 quad ruled composition notebook\$1.99

Your notebook will be used for the EI project, microbe collection, and term project, collectively worth 32% of the course grade, and will be collected and graded frequently. Examples of notebook entries are available in the appendices of the lab manual.

3. Laboratory Manual (sold by the Microbiology club) ~\$20.00. Experiments for each day are to be read thoroughly **PRIOR TO CLASS** such that you can come to class prepared and ready to go.