

Biology 240- Microbiology

Spring 2010

Instructor: Krista M. Granieri

Office: 36-205F

Email: granierik@smccd.edu

Website: <http://www.schoonerchantal.com/granieri.html>

Office Hours: Mon & Wed 11:00am -12:00pm + by email anytime

Lecture: Monday & Wednesday 2:10-3:30pm Rm: 36-207

Lab: Monday & Wednesday 12:10-1:30pm OR 3:45-5:05pm Rm: 36-204

This course is a 4-unit introduction to microbial life in nature, the molecular and biochemical characteristics of microorganisms, and the techniques and procedures used by microbiologists. Emphasis is placed on those microbes that play an important role in human daily life, especially those that cause disease. Laboratory emphasizes isolation, cultivation and identification of bacteria.

Prerequisite(s): CHEM 192, 210 or 410 or equivalent, and either BIOL 110 or 130 or equivalent.

Pre-requisites are strictly enforced

Recommended: Eligibility for READ 836, and ENGL 836 or 400;

Text:

MICROBIOLOGY- 2 or 3rd edition *with diseases by body system* Robert W. Bauman

Lab Manual: Microbiology Laboratory: Theory & Application Brief edition- ISBN: 0895827050

Required supplies:

Lab coat- or long sleeved scrubs

Disposable lab gloves (available at most drug stores near the pharmacy section)

A roll of ½" masking tape (the stuff used for painting)

An **ultra-fine** point sharpie

A calculator with log and scientific notation functions-bring it to every lab period

A bound lab notebook (the black & white ones with grid paper)

Course Objectives:

1. Describe or demonstrate an understanding of Taxonomy and Phylogeny of microorganisms.
2. Demonstrate an understanding of the metabolic characteristics and ecology of the various groups of microbes.
3. Demonstrate mastery of laboratory techniques appropriate to microbiology.
4. Understand how the scientific method relates to the study and understanding of microbiology historically and in modern day applications.
5. Be knowledgeable of industrial, biotechnological and clinical applications of microbiology.

Grading Protocol: Your grade will be based on the following:

Lecture:

Lecture Exams (4 @ 175pts)	700
MMWR Report Project	20
Lecture Quizzes (~3@~10pts each)	30
Lecture Total	750

A = 90-100%
B = 80-89%
C = 68-79%
D = 57-67%
F < 57%

Lab:

Lab Exams (4 @ 25pts)	100
Bioinformatics Project	30
Unknown Project	50
Gram Stain Practical	25
Lab Notebook	20
Lab Participation	25
Lab Total	250

Lecture:

Three Lecture Exams: (175pts each) The lecture exams may include any material covered in the lectures up to the lecture prior to the exam date. These exams may include multiple-choice, true-false, matching, fill-in and short answer questions. These will require Scantron 882-E forms (the teal-colored ones).

Final Exam: (175 pts) It will have two sections. The first half will contain material covered since the last in-class exam and the end of the semester. The second half will contain material covered throughout the course. It will be the same length and have the same general format as regular exams and will require a Scantron 882-E form.

Lecture Quizzes (3 @ 10pts) Lecture quizzes will be multiple-choice quizzes given shortly before exams or at the end of a general topic of study. They may or may not be announced. There are NO make-ups for missed quizzes. You will need “quiz-strips” 15-question scantrons (available at the bookstore).

MMWR Report Project (20pts) This project is described in your lab manual (p. 377). Each student will select a disease from the list and complete the project as described in the manual and will turn in a typed report that contains ALL of the information as laid out in the “data sheet” section of the lab manual.

Extra Credit:

Study Guides- up to 5pts each (20pts) Study guides are optional but effective tools to help prepare for lecture exams. Students who follow the study guide and write down their answers tend to do better on exams than those who do not. Study guides that are written out on separate sheets are worth up to 5 points toward the exam. You may work on study guides together; however, each student must turn in their own work (no photocopies or double computer printouts). And NO, you may not turn in your flashcards as a study guide.

Jeopardy- (up to 2pts each) In the week preceding exams we will sometimes play “Jeopardy” in class and you will have an opportunity to earn extra credit by correctly responding to the clues.

NOTE: There will be no other extra credit or “make-up” projects as a means of raising grades.

Lab:

Lab Participation: (25pts) Each student starts out with 25 points. It is not hard to get the full 25 points if you are on-time, prepared for class and paying close attention to detail. You can lose these by being late, forgetting to wear a lab coat or gloves, skipping lab, leaving oil on your microscope, not completing the lab assignments, not properly cleaning up your station, etc.

Gram Stain Practical: (25pts) Each student will be required to demonstrate a gram-stain including staining and then focusing the specimens on the microscope under immersion oil.

Unknown: (50pts) Each student will be required to complete an identification of an unknown sample of bacteria. You can find more information this project in your lab manual. You should obtain the Unknown Project Checklist available on the class website.

Lab Exams (25pts) Lab exams will be short answer questions requiring knowledge of vocabulary, lab procedures and topics covered during lab lectures. They may also include calculations and solving simulated laboratory problems. Be sure to bring a scientific calculator with you to these exams.

Bioinformatics Project (30pts) We will work with online bioinformatics programs to introduce the concepts of studying genomes using computers. Each student will select a protein to study and will write a short paper on the structure and function of the protein. We will work in lab to compare the protein sequences to other known sequences to try to work out molecular homologies.

Lab Notebook (20pts) You will keep a detailed lab notebook with descriptions of all lab activities during the semester. The format will be discussed during the first lab. You will turn it in at the end of the semester.

Important Notes:

Class Attendance Policy: Students are expected to attend lecture and laboratory periods regularly. If you must miss a lecture, be sure to get the notes from a classmate. If you miss a lab, let me know ASAP and you *may* be able to attend another lab section. If you miss three labs, you will be dropped from the course.

MISSED EXAMS: If you miss an exam (for a valid & documented medical/emergency reason) AND contact me within 24hours, I will *try* to arrange an alternate time (no guarantees). If you miss more than one exam or if you miss the final you will not pass the course.

Disability Resources: If you have a documented disability and need accommodations for this class, please see me as soon as possible or contact the Disability Resource Center (DRC) for assistance. The DRC is located in Bldg. 16 Rm. 150 (650) 574-6438; TTY (650) 574-6230.

Cheating Policy: College of San Mateo (and this instructor) has a strict no cheating policy. Students found cheating on class examinations, quizzes or homework will fail the assignment and may be expelled from this class and/or the college.

Tentative Biology 240 Lecture Schedule

1	1/20	Introduction to Microbiology	
2	1/25	History of Microbiology	
	1/27	Eukaryotic Cell Structures & Functions	
3	2/1	Prokaryotic Cell Structures & Functions	
	2/3	Microbial Classification: Prokaryotes	
4	2/8	Microbial Classification: Eukaryotes	
	2/10	Microbial Classification: Viruses	
5	2/15	PRESIDENT'S DAY- no classes	
	2/17		EXAM I
6	2/22	Microbial Metabolism	
	2/24	Microbial Metabolism	Lab Exam 1
7	3/1	Microbial Metabolism	
	3/3	Microbial Growth	
8	3/8	Microbial Control	
	3/10	FLEX DAY- No Classes	
9	3/15	Microbial Control	
	3/17	Epidemiology	<i>Begin MMWR Report Project</i>
10	3/22		EXAM II
	3/24	Epidemiology	
11	3/29	Pathogenicity	Lab Exam 2
	4/31	Immunity	
	4/3-4/9	SPRING BREAK: NO CLASS	
12	4/12	Immunity	MMWR Project Due Today
	4/14	Bacterial Pathogens	Gram Stain Practical
13	4/19	Bacterial Pathogens	
	4/21	Fungi	
14	4/26		EXAM III
	4/28	Protozoan Parasites	Lab Exam 3
	5/3	Helminthes	
15	5/5	Helminthes	
	5/10	Viral Diseases	
16	5/12	Microbial Genetics	
17	5/17	Microbial Genetics	Unknown Write-up Due
	5/19	DNA Technologies	Lab Exam 4
	24-26		FINAL EXAM 2:10- 4:40 pm