

Spring 2003 ABIO 330 MICROBIOLOGY

INSTRUCTOR: Dr. Garriet W. Smith

Lecture Rm. 200, SBDG, TTH 4:30 - 5:45 PM. All laboratory meetings are in Rm. 213, SBDG, T (Lab 1) and TH (Lab 2) 6-8:40PM

TEXT: *Biology of Microorganisms*, Brock *et al.*, 10th.ed. Past editions of this book do not contain all of the updated information. You may be able to get along with past editions, but you will have to check the required reading (see daily schedule). The inlays of the 9th-on edition contain summarized information that you need to learn for the first test.

MICROBIAL LITERACY PROGRAM: The American Society for Microbiology has produced a series of videos designed to insure students of Microbiology are exposed to a representative cross section of the field. I have viewed these a number of times and feel that they are both entertaining and insightful. Therefore, you will be shown these during the semester. These are not optional and a weekly test will be given on some of them and some questions on the final will come from others.

COURSE LEVEL: 2nd to 3rd year Biology major - level course. There is a lot of material to cover in a short period of time. The material is concept-based. That means that you should have an overall understanding of what the lecture is going to be about, before you get to class. This will help you understand what the lecturer is talking about. Therefore, please read the text before class. If you have read the text and are still unable to follow the lecture, ask questions then, not later. There is memorization required for pathways and sequences of events, but this type of rote is probably different than you have done for other courses, in that, it is designed to help understand the significance of an overall process. We hope that all of you will leave the course with an appreciation, or even a fascination, for the extremely diverse and ever-changing field of Microbiology. It can be frustrating due to the complex nature of these organisms. Remember, of the three domains or kingdoms of living organisms, we are covering two of them in a few weeks. Good luck and we hope you all do well.

SCHEDULE FOR Spring 2003 ABIO 330 MICROBIOLOGY

SUBJECT	TEXT	CHAPTER
LECTURE: History of Microbiology, Diego Gil		
LECTURE: Microbial cytology, evolution and phylogeny	Chap. 2,3&15	
LABS, Safety, Sterile Technique and Microscopy		
LECTURE: Molecular Genetics	Chap.5	
LABS: Spread Plates, Streak Plates		
LECTURE: Energy Generation Glycolytic Pathways		Chap.4
LECTURE: Fermentations	Chap 4 &18	
LABS: Growth Curves		
LECTURE: Organoheterotrophy	Chap.4	
LABS: NADH : NAD Assay		
LECTURE: Photo- and Autotrophy	Chap.16	
LABS: Isolation of organisms and repeat exercises		
LECTURE: Metanotrophs, Methylotrophs and Methanogens	Chap. 4, 17 &18	
LABS: Carbon Source Utilization		
TEST 6 LECTURE: Pathogenics	Chap.11	
LECTURE: Immunology	Chap.12	

Final Exam: May 6 5PM

ASSESSMENT OF STUDENT PERFORMANCE: Students will be assessed based on understanding of subject matter, ability to determine important concepts, proficiency in the laboratory and attitude. Test will be given to determine understanding of subject matter. A comprehensive final exam will test your ability to retain the information and your ability to determine important concepts. Each test and the final exam will count for 80% of the final grade. The remaining 20% is your laboratory grade.

COURSE GOALS: (1) To introduce students to modern microbiology. This includes current concepts of the evolution, phylogeny, genetics, metabolism and ecology of prokaryotic organisms.

(2) To introduce students to both classical and modern techniques. This will be done in three ways: through hands-on laboratory experiences; videos on technique shown in the lab; and during lectures.

(3) To introduce students to the applications of basic research in microbiology. Examples are given in the lectures on therapeutic products. antibiotics, pathogenics and immunology.

LABORATORY REPORTS: Your ability to learn laboratory techniques and performance in lab will be determined by how well you characterize your isolate and prepare your final report. This should be written up as a scientific paper. Follow the format used in the journal *Microbial Ecology*.

If you have a physical, psychological, and/or learning disability which might affect your performance in this class, please contact the Office of Disability Services, 126A B&E, (803) 641-3609, as soon as possible. The Disability Services Office will determine appropriate accommodations based on medical documentation.

ATTENDANCE POLICY: Students are expected to attend all lectures and labs. Any material missed during an excused absence (emergency), will be the students responsibility.

HINTS ON DOING WELL IN THIS COURSE: (1) Never miss a class or lab. (2) Take good notes during lecture. (3) If you have a question speak up in class, don't wait until after class. (4) Read the assigned material before class, don't wait until after the material is covered in class. (5) Rewrite your notes promptly after class using your text for more explanation. (6) Form nightly study groups and lecture to each other. This is very effective. None of these guarantee a good grade, but if you do them all your chances are very good.