

ABIO 330 MICROBIOLOGY Spring 2007

SYLLABUS

INSTRUCTORS: Dr. Garriet W. Smith, Rm. 203 Science Buld.

Laboratory Instructor: Dr. Smith, David Nathan

LABORATORY ASSISTANTS: Maurine Holley, Marie-Ange Smith

COURSE LOCATION: Lecture, Rm. TTH SBDG Rm 200, 1:40-2:55

Laboratory, Rm. 213, SBDG, T: 3:05-5:45 and Th 3:05-5:45

TEXT: *Biology of Microorganisms*, Brock *et al.* 11th ed.

LAB MANUAL: Holley and Smith. Specific Laboratory instructions will given during the start of the lab. DO not be late. The Manual only gives general guidelines and is not to be followed to the letter.

COURSE LEVEL AND CREDIT: 2nd to 3rd year Biology Major Level, 4 hours credit

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. Weekly tests will be given to determine understanding of subject matter; you must be there during tests since make-ups during summer are not feasible. A comprehensive final exam will test your ability to retain the information and your ability to determine important concepts. Tests, mid-term and the final exam will count for 75% of the final grade. The remaining 25% is your laboratory grade. Part of this grade is for proficiency and attitude. Be aware that this is not for meeting every lab on time (although your grade will surely drop if you miss a lab, or are consistently late). It is your instructor's determination of your proficiency and attitude. This is determined by agreement among the instructors comparing all students with respect to their leadership roles in lab; how quickly and well techniques are mastered; and if their presence in lab was a help for other students and conducive to learning. Most of your lab grade will be based on your write-up of your unknown. **The first part of lab is to teach you how do things on your own. You will repeat all excersizes on your unknown using what you learned during the first half of lab.** Some students excel in laboratory conditions, some do not. Do your best.

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.

STATEMENT FOR DISABLED STUDENTS: "if you have a learning or physical disability which might affect your performance in this class, please contact the Office of Disabled Student Services. Once an evaluation has been made, appropriate accommodations will be made."

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.

UNSEEN LIFE ON EARTH: As part of the American Society for Microbiology's Microbial Literacy Program, a series of videos will be shown during lecture times to insure a complete overview of the field. Questions from these videos and the ensuing discussions may be included on tests.

SEQUENCE OF TOPICS

Introduction to the course and syllabus. The Microbial Universe.

Unseen Life on Earth parts 1-6.

TEST

Introduction to the Bacterial and Archaeal Kingdoms; Morphology and Cytology of bacteria. Chap. 1 and 3.

Phylogeny of Living Organisms: Techniques used to determine phylogenetic relationships; Universal Phylogenetic Tree.

TEST

Bacterial Growth and Metabolism.

The Unity of Living Systems. Metabolism.

Glycolytic Pathways and Fermentations.

TEST

Other Degradative Pathways

TEST

Carbon-Dioxide and Methane Fixation

TEST

Microbial Evolution. Microbial Diversity.

Bacterial Genetics 1.

TEST

Bacterial Genetics 2. Disease and Immunology. Human Defenses. Microbes and Human Diseases

FINAL EXAM May 3, 2:00 pm