

MICROBIOLOGY

page 2

SUMMER QUARTER, 2010 David B. Fankhauser, Ph.D.

Office: **EDS 215 P**, Hrs: MWF, 1:30-2:30 PM
 email: David.Fankhauser@UC.EDU
 Homepage: <http://biology.clc.uc.edu/Fankhauser>

SYLLABUS
 34-BIOL-281-151

Professor of Biology & Chem
 U. C. Clermont College
 Batavia OH 45103

COURSE OBJECTIVES: To learn about microorganisms, including their anatomy, physiology, taxonomy, genetics, how to control their growth, their medical significance, their epidemiology, the body's protective responses to their challenge (both non-specific and immune), exogenous antimicrobial agents, and **etymology** of the nomenclature related to all these subjects.

LABORATORY SKILLS TO BE LEARNED: oil immersion microscopy, differential staining, sterile technique, sterile media preparation, single colony isolation, serial dilution, use of selective and differential media, microbial enumeration (photometrically, plate count, membrane filtration), inhibition assay. See **Lab Notebook Procedure** for important details.

REQUIRED TEXT: Bauman, Robert *Microbiology With Disease by Taxonomy*, 3rd Ed. Pearson Educational (2010)

SCHEDULE: Lecture is 10:00 to approximately 11:25, Laboratory from 11:35 to 1:20.

This calendar is an approximation, and may be adjusted according to the rate at which material is successfully presented and mastered. **Assigned readings:** in the lower left of each date are text page numbers which should be read before class.

READINGS IN TEXT ARE IN LOWER LEFT OF DUE DATE.

NOTE: *Pop pre-lab quizzes will be given.*

7/5 INDEPENDENCE DAY HOLIDAY... Last day of Freedom!	7/7 Introduction to Course Early History of Microbiology Spontaneous Generation? 1-53 (Review Chemistry on your own)	7/9 Lab First: Prepare media Germ Theory of Disease Microscope History, Function & Stains Microscope: 95-113
7/12 Prokaryotic Anatomy: Capsules, Flagella, Pili Cell Wall Structure 54-77 QUIZ I	7/14 Lab first, middle and last...: Bacterial Growth Curve Sporulation. Enzymology, Metabolism 124-145	7/16 Glycolysis Microbial Fermentation 145-164, esp 145-147 (fem), 165-193
7/19 Required for Microbial Growth? Microbial Control: Physical Means 257-271 QUIZ I	7/21 Microbial Control: Chemical Means 271-311	7/23 Microbial Genetics [Mon: bring anti-bacterial agents to test] 194-256 NOTEBOOKS DUE
7/26 Microbial Taxonomy Intro to Gram positive bacteria <i>Staphylococcus, Streptococcus</i> 312-338; 533-544	7/28 Spore forming Gram positive bacteria: <i>Bacillus, Clostridium,</i> 544-553	7/30 Lab First: Blood Agar results Take home sterile culture tubes MIDTERM EXAM
8/2 Midterm returned, discussed. Gm+ bact. cont: <i>Mycobacteria</i> Gram negative bacteria: <i>Neisseria,</i> <i>Enterobacteriaceae et cetera</i> 553-593	8/4 Mycoplasmas, Rickettsias, Chlamydias, Spirochetes, Vibrios 554-557, 600-694	8/6 Lab First: TSI slant prep Medically Important Fungi Eukaryotic Parasites 625-644; 651-680 QUIZ III
8/9 Viruses I: DNA Viral Diseases: Pox viruses, Herpes, CMV Papilloma, Hepatitis B 374-400; 681-705	8/11 Viruses II: RNA Viral Diseases Rhino-, Polio-, Encephalitis, Rubella HIV, Measles, Rabies, Influenza 706-744 NOTEBOOKS DUE	8/13 Diseases and Epidemiology Host Defenses: Non-specific and specific 401-434; 435-458 QUIZ IV
8/16 Lab 1st: growing viruses! Immunology: Mech. of the Immune Response, Problems 459-532	8/18 Lab 1st: Count plaques, calc. titer FINAL EXAM So long, it's been good to know you. KEEP IN TOUCH!	Free at last, free at last, Thank God almighty, We're free at last... ;-)

Quizzes (given at 11:00) and exams will include material from both lecture and lab exercises. Grades will be assigned according to your position on a class histogram of cumulative points earned on quizzes, notebooks and exams. The class midline approximates a B. See separate handout on suggestions for how to succeed in this course.

Version 2 July 2010