

# MICROBIOLOGY

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SUMMER QUARTER, 2009

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Office: EDS 215 P, Hrs: MWF, 1:15-2:30 PM

## SYLLABUS

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**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 related to all these subject.

**LABORATORY SKILLS TO BE LEARNED:** oil immersion microscopy, differential staining, sterile technique, 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*, 2nd Ed, Pearson educational (2007)

**OPTIONAL TEXTS:** Borror *Dict. Of Word Roots & Comb Forms* Mayfield Pub. (1960)

**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.

7/6 Introduction to Course Early History of Microbiology Spontaneous Generation? 1-24	7/8 (Review Chemistry on your own) Germ Theory of Disease Microscope History, Function & Stains Chem: 25-54, Microscope: 93-112	7/10 <b>Lab First: Prepare media</b> Prokaryotic Anatomy I: Capsules, Flagella, Pili 55-65
7/13 Prokaryotic Anatomy II: Cell Wall Structure, Sporulation 65-92	7/15 <b>Lab first, middle and last...</b> Bacterial Growth Curve Enzymology, Metabolism, Glycolysis 123-138	7/17 Microbial Fermentation Requirements for Microbial Growth 139-169, esp 146-148 (ferm), 165-195
7/20 Microbial Control: Physical Means 261-276	7/22 Microbial Control: Chemical Means (bring in anti-bacterial agents to test) 276-314	7/24 Microbial Genetics 196-260
7/27 Microbial Taxonomy Intro to Gram positive bacteria <i>Staphylococcus, Streptococcus</i> 315-342; 529-541	7/29 Spore forming Gram positive bacteria: <i>Bacillus, Clostridium,</i> 542-552	7/31 <b>Lab First: Blood Agar results</b> Take home sterile culture tubes  <b>MIDTERM EXAM</b>
8/3 Midterm returned, discussed. Gm + bact. cont: <i>Mycobacteria</i> Gram negative bacteria: <i>Neisseria,</i> <i>Enterobacteriaceae et cetera</i> 553-593	8/5 Mycoplasmas, Rickettsias, Chlamydias, Spirochetes, Vibrios 594-621	8/7 <b>Lab First: TSI slant prep</b> Medically Important Fungi Eukaryotic Parasites 622-647; 648-678
8/10 Viruses I: DNA Viral Diseases: Pox viruses, Herpes, CMV Papilloma, Hepatitis B 365-403; 680-702, 611-620	8/12 Viruses II: RNA Viral Diseases Rhino-, Polio-, Encephalitis, Rubella HIV, Measles, Rabies, Influenza 703-741	8/14 Diseases and Epidemiology Host Defenses: Non-specific and specific 404-436; 437-460
8/17 <b>Lab 1<sup>st</sup>: growing viruses!</b> Immunology: Mech. of the Immune Response, Problems 461-528	8/19 <b>Lab 1<sup>st</sup>: Count plaques, calc. titer</b> <b>FINAL EXAM</b> So long, it's been good to know you. KEEP IN TOUCH!	

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.

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