Biology 445 Pathogenic & Diagnostic Microbiology

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Textbook:
"Clinic Bacteriology" by J. Keith Struthers and Roger P. Westran, 2003. Publisher: ASM Press and Manson Publishing

Brock biology of microorganisms 10th ed. Madigan, Martinko and Parker. 2002. Publisher: Prentice Hall

Course description:
The study of the morphological and cultural characteristics and the pathogenic properties of microorganisms. Emphasis is placed on the biological properties, isolation, identification and the control of pathogenic bacteria.

Lab exercises are designed to illustrate and clarify basic concepts and familiarize students with the methods of studying viruses.

Tests:
There will three scheduled tests, each worth 30%.
Discussion/presentation: 10%.

Everyone is expected to be present for tests at the time they are given. If you are going to miss a test and have a legitimate excuse, i.e., health center excuse for illness, **notification must be given to me before** the test is given and make arrangements for a makeup.

Class participation:
Attendance to all lecture and laboratory classes is expected of all students. Students are expected to be actively involved in class discussion by raising and answering questions.

Grade calculation:
Grade Scale: 100-90% A, 89-80% B, 79-70% C, 69-60% D, <60 F.

Class preparation
Students are assumed to have good reading, writing and math skills. It is your responsibility to read the syllabus and prepare in advance for course materials. You will be responsible for textbook readings before the topics are discussed. To better understand the material, it is highly recommended rereading the material following lecture and class discussion.

If the syllabus is revised at any time during the semester, the revisions will be announced in class. You will be responsible for the revisions, even is you are absent at the time revisions are announced.

Lecture schedule

Week 1	Bacterial cellular structure
Week 2	Microbial and human interactions
Week 3	microbial growth control
Week 4	Immunity to infection
Week 5	Epidemiology
Week 6	Clinical microbiology and immunology
Week 7	Bacterial pathogen: Staphylococcus
Week 8	Bacterial pathogen: Streptococcus
Week 9	Bacterial pathogen: Enteric bacteria
Week 10	Bacterial pathogen: Bacillus
Week 11	Bacterial pathogen: Clostridium
Week 12	Bacterial pathogen: Neisseria
Week 13	Bacterial pathogen: spirochete
Week 14	Bacterial pathogen: Mycobacterium
Week 15	Bacterial pathogen: Legionella

Lab manual:
1. Laboratory fundamentals of microbiology, 6th Ed. Alcamo, I. Edward. Jones & Bartlett Publishers
2. Handouts

Lab schedule

Week 1	Microscopic observation of bacteria
Week 2	Simple stain, negative stain, and Gram stain
Week 3	Bacterial pure culture
Week 4	Biochemical characteristics of bacteria
Week 5	Agglutination
Week 6	Staphylococcus
Week 7	Enteric bacteria
Week 8	Bacillus
Week 9	Clostridium
Week 10	Neisseria
Week 11	Streptococcus
Week 12	Mycobacterium
Week 13	Isolation of Legionella from residential water
Week 14	Detection of Legionella using PCR
Week 15	Serology detection of Legionella infection