

SYLLABU

FALL 2012

Course: Microbiology in Health and Disease

BIPIN PATEL

Office Hours: Before or after Class or by appointment

Semester Begins AUGUST 13 TO DECEMBER 7 2012

2900 D 4.00	Microbiology in Health/Disease	Main Campus
LECTURE	MON-TUES 05:30 pm - 06:45 pm	BC 1025LECTURE
LAB	MON-TUES - 06:55 pm - 08:20 pm	BC 2068LAB
22801 BIOL		

COURSE OBJECTIVES:

With a focus on healthcare majors, the objectives of this course are:

- (a) To introduce students to microbiology and the vital role microorganisms play in the well-being of higher forms of life, as well as in causing diseases, mostly as opportunists,
- (b) To learn various groups of microorganisms and what makes them infectious,
- (c) To learn most common infections caused by microorganisms, and
- (d) To learn the preventive and curative measures against common infections.

SPECIAL NOTES TO STUDENTS:

1. In order to respect the privacy of each student, exam scores and grades will not be posted, given out by telephone, or sent to students by email.

2. Students are a

GRADING SCALE:

Grade A = 90 -100% or between 540 and 600 points

Grade B = 80 - 89% or between 480 and 539 points

Grade C = 70 - 79% or between 420 and 479 points

Grade D = 60 - 69% or between 360 and 419 points

Grade F = Less than 60% or 359 or less points



Week 1

Subject(s)

General course information
 Introduction to Microbial World
 Introduction to Microscopy
 Personal and patient safety in healthcare environment
 Safety in microbiology laboratory

Learning Objectives

History of Microbiology, role of microbes in nature, well-being of other living things, science, health and diseases. Introduction to Microbiology
 Laboratory Safety, hand hygiene
 Proper handling and use of microscope

Week 2

The Molecules of Life
 Microscopy and Cell Structure
 Use of Microscope, Practice of focusing on human blood components
 Practice of using oil immersion lens

Characteristics of prokaryotic and eukaryotic cells
 Principles of microscopy, use of microscopes
 Distinction of various groups of bacteria

Week 3

Microbial Metabolism, Physiology and Genetics
 Examination of microscopic life in pond water - Protozoa, Algae, Cyanobacteria
 Culture of normal environmental and body flora

How microbes live and multiply
 Study of higher forms of microbial life



Week 6



Control of Microbial Growth Disinfection and Sterilization
Demonstration of Steam sterilization and Sterility Check
Gram Stain of common pathogenic bacteria

Levels of sanitization, disinfection, and sterilization under various situations

Week 7

Diagnosis of Infectious Diseases in clinical Laboratory - Methods for the direct and indirect, rapid and slow techniques employed in a clinical Microbiology laboratory
Demonstration of rapid diagnostic techniques used in a POC or ED laboratory

What is available at the disposal of clinicians to diagnose infectious diseases?

Week 8

MID-TERM EXAMINATION

Introduction to Antimicrobial Agents
Aerobic Gram Positive Cocci and their clinical significance
Differentiation of Gram Positive Cocci in a laboratory



Treatment of microbial infections
Introduction to Staphylococci, and their impact on humans

Week 9

Continuation of Antimicrobial Agents
Continuation of Aerobic Gram Positive Cocci
Differentiation of Gram Positive Cocci in a laboratory

Treatment of microbial infections

Week 10

Week 11

Antimicrobial Susceptibility testing Principles, procedures, and results
Clinically significant aerobic Enteric Gram Negative bacteria
Escherichia, Salmonella, Shigella

How antimicrobial treatment parameters are determined
Introduction to Enterobacteriaceae, and their impact on humans

Week 12



Antimicrobial Susceptibility Results Their Interpretation and
Applicability to patient care
Clinically significant aerobic Non-Enteric Gram Negative bacteria
Pseudomonas, Acinetobacter, Haemophilus

How the results from a Microbiology laboratory
may be applied in patient treatment
Introduction to non-enteric aerobic bacteria, and
their impact on humans

Week 13

Clinically significant:

