

Chapter 1 - The Microbial World and You

Student Responsible Vocabulary

Bacteriology

Mycology

Parasitology

Immunology

Virology

Genomics

Recombinant DNA technology

Lecture Outline

I. Background

A. Microbes

- a. pathogenic
- b. nonpathogenic

II. Naming Microorganisms

A. Nomenclature

1. binomial
 - a. genus
 - b. species
 - c. writing rules

III. Classifying Microorganisms

A. Classification system

B. Types of microorganisms

1. Prokaryotes
 - a. bacteria
 - 1) peptidoglycan
 - b. archaea
2. Eukaryotes
 - a. fungi
 - a) mycelia
 - b) hyphae
 - 1) chitin
 - b. protozoa
 - c. algae
 - 1) cellulose
 - d. helminths
 - e. Plants & Animals

C. Viruses

IV.A Brief History of Microbiology

A. Microscopy

1. Hooke
 - 1) cells

2. Van Leeuwenhoek

B. Spontaneous Generation

1. Redi
2. Virchow
3. Louis Pasteur
4. John Tyndall & Ferdinand Cohn
 - a. endospores

C. Applications of Germ Theory

1. Lister
2. Pasteur
 - a. pasteurization
3. Koch
 - a. Koch's Postulates
4. Vaccination
 - a. Edward Jenner
 - b. Pasteur

D. Golden Age of Microbiology

E. Treatments

1. Ehrlich
2. Fleming
3. Antibiotic
4. Resistance

V. Microbes and Human Welfare

A. Recycling

B. Sewage treatment

C. Bioremediation

D. Pest control

E. Food

F. Biotechnology

VI. Microbes and Human Disease

A. Normal Microbiota

B. Biofilms

C. Infectious Disease

D. Emerging infectious diseases