

UNIVERSITY OF JORDAN
FACULTY OF MEDICINE
DEPARTMENT OF PATHOLOGY, MICROBIOLOGY & FORENSIC MEDICINE
INTRODUCTION TO MICROBIOLOGY
COURSE NO. (504204), (3) CREDIT HOURS

Instructors :

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Objectives :

By the end of this course the students should be able to:-

1. Mention types of microorganisms, their classification and structure.
2. Describe the pathogenesis and manifestations of diseases caused by microorganisms.
3. Describe methods of diagnosis of infections including; specimen selection, handling and processing.
4. List major classes of antimicrobial agents, describe their mechanisms of action and mention the commonly used individual antimicrobials & development of antimicrobial resistance

Introduction and Classification

- **Bacteriology -20 hours:**
 - Cell Structure and classification of bacteria
 - Growth and death of bacteria
 - Bacterial genetics
 - Control of microorganisms by sterilization and disinfection
 - Antimicrobial Agents
 - Gram- Positive Cocci (Staphylococci ,Streptococci, Enterococci)
 - Gram- Positive Bacilli (Bacillus, Corynebacteria)
 - Gram–Negative Cocci (Neisseria, Moraxella) & Gram–Negative cocobacilli (Haemophilus, Bordetella)
 - Gram–Negative Bacilli – Enteric Bacteria (E.coli, other coliform, Salmonella spp. , Shigella spp.).
 - Gram–Negative Bacilli -Nonfermenting Organisms (Pseudomonas spp., Acinetobacter spp. Aeromonas spp., Vibrio cholerae)
 - Gram- Positive Spore forming anaerobes bacilli (Clostridia)
 - Anaerobic Gram-negative bacilli (Bacteriodes & others)
 - Mycobacteria, Spirochetes, Chlamydia, Mycoplasma, Legionella & Rickettsiae

Fungi-2 hours:

- **General Characteristics**
- **Classification**
 - Agents of superficial Infections
 - Agents of subcutaneous Infections
 - Agents of systemic Infections
 - Opportunistic fungi

Parasitology-4 hours:

- **Introduction and Classification**
- **Protozoa**
 - Ameba
 - Flagellates
 - Sporozoa
 - Ciliates
- **Helminthes** (general features and life cycles).
 - Nematodes-intestinal
 - Tissue
 - Cestodes
 - Trematodes
- **Arthropods**

Virology-20 hours:

- General characteristics and classification
- Viral Replication
- Viral genetics cultivation of viruses and their laboratory diagnosis
- Antiviral agents
- Pathogenesis of viral infections
- Immunity to viral infections

DNA Viruses:

- Parvoviruses
- Papovaviruses
- Adenoviruses
- Herpesviruses
- Poxviruses
- Hepadnaviruses

RNA Viruses:

- Picornaviruses
- Orthomyxoviruses
- Paramyxoviruses
- Coronaviruses
- Rubellavirus
- Rhabdoviruses
- Reoviruses
- Retroviruses

- Hepatitis C virus
- Hepatitis E virus

Others :

- Arthropod-borne viruses
- Slow viruses
- Oncogenic viruses

Recommended Textbooks

1. Medical Microbiology
Jawetz, Melnick and Adelberg's, 24th Edition
2. Medical Microbiology
David Greenwood and et al.
Churchill Livingstone, England, 18th Edition