

## **Medical Microbiology (MMD-989)**

**Credit Hours 3 (3-0)**

### **Course Description**

Medical Microbiology is appropriate for students preparing for careers in medicine, dentistry, nursing, and allied health, as well as research, teaching, and industry. The course sets out what students require of a modern microbiology laboratory and how basic bench microbiology can fulfill these requirements. Practical experience is then given as the basic identification of bacteria and students become proficient at routine microbial identification thus providing a firm foundation for later development of modern methodologies which the student may then want to explore in other units or courses .

### **Educational Objective**

On completion of this course unit students will have or be able to:

- Understand the classification of microbial pathogens and be able to identify those that cause significant disease in humans.
- Have a broad knowledge of symptoms associated with microbial infection and how these present in different patient groups.
- Acquired detailed knowledge of the pathogenesis of bacterial and viral infections in the community and hospitals.
- Understand the sources and route of transmission of microbial pathogens in relevant settings.
- Understand the role of decontamination and the infection prevention and control team in disease prevention.

### **Course Contents**

- Introduction to Medical Microbiology
- Human Microbiome in Health and Disease
- Sterilization, Disinfection, and Antisepsis

### **Bacteriology**

- Bacterial Classification, Structure, and Replication
- Bacterial Metabolism and Genetics
- Mechanisms of Bacterial Pathogenesis
- Role of Bacteria in Disease

## **Laboratory Diagnosis of Bacterial Diseases**

- General Principles of Laboratory Diagnosis
- Microscopy and In Vitro Culture
- Molecular Diagnosis
- Serologic Diagnosis

## **Virology**

- Viral Classification, Structure, and Replication
- Mechanisms of Viral Pathogenesis
- Role of Viruses in Disease
- Laboratory Diagnosis of Viral Diseases
- Antiviral Agents and Infection
- Control

## **Mycology**

- Fungal Classification, Structure, and Replication
- Pathogenesis of Fungal Disease
- Role of Fungi in Disease
- Laboratory Diagnosis of Fungal Disease
- Antifungal Agents
- Superficial and Cutaneous Mycoses
- Subcutaneous Mycoses
- Systemic Mycoses Caused by Dimorphic Fungi
- Opportunistic Mycoses
- Fungal and Fungal-Like Infections of Unusual or Uncertain Etiology
- Mycotoxins and Mycotoxicoses

## **Parasitology**

- Parasitic Classification, Structure, and Replication
- Pathogenesis of Parasitic Diseases
- Role of Parasites in Disease
- Laboratory Diagnosis of Parasitic Disease
- Antiparasitic Agents

### **Recommended Books**

1. Lansing M. Prescott. Microbiology. 5th Edition. The McGraw–Hill Companies, 2002.
2. Nader Rifai. Clinical Microbiology. 1st Edition. MA USA. 2019
3. Mims, C., Dockrell, H., Goering, R., Roitt, I Wakelin, D. and Zuckerman, M. 3rd Edition.. Medical Microbiology..Mosby Co., M.O. 2007