Module (Course Syllabus) Catalogue

2024-2025

College/ Institute	Erbil Technical Medical Institute	
Department	Pharmacy	
Module Name	Medical Microbiology	
Module Code	MEM204	
Degree	Technical Diploma [×] Bachler [ ] High Diploma [ ] Master [ ] PhD [ ]	
Semester	Second	
Qualification	PhD Microbiology	
Scientific Title	Assistant Professor	
ECTS (Credits)	6	
Module type	Prerequisite [/] Core [ ] Assist. [ ]	
Weekly hours	4	
Weekly hours (Theory)	(2) hr Class	(6)Total hrs Workload
Weekly hours (Practical)	(2) hr Class	(6)Total hrs Workload
Number of Weeks	12	
Lecturer (Theory)	Dr. Rozhhalat Khudhur Jarjees	
E-Mail & Mobile NO.	rozhhalat.jarjees@epu.edu.iq (07504685692)	
Lecturer (Practical)	Dr. Rozhhalat Khudhur Jarjees Naznaz Hussen Othman	
E-Mail & Mobile NO.	rozhhalat.jarjees@epu.edu.iq (07504685692) naznaz.othman@epu.edu.iq	
Websites		

Course Book

Course Description	Medical Microbiology for pharmacy is a one semester course. In this course, students are given the basic and general information about microorganisms (bacteria, fungi, parasites, and viruses) that cause diseases, and how to prevent its transmission and how to treat it with antibiotics. And in the laboratory, they take information about the using and sterilizing instruments and devices in the microbiology laboratory, the methods for identification of pathogens, and doing antibiotic sensitivity test.
Course objectives	The main objective of the course is • Enabling the students to know the pathogens that cause disease. • To learn how to work in the laboratory, and methods for cleaning and sterilizing the instruments and devices in laboratory. • To learn how to Identifying bacteria and other pathogens by using microscopic characteristic, proper stains, and cultures. • To learn how to prevent the transmission of the disease. • Enabling the students to do sensitivity test
Student's obligation	• Attendance: - Attendance is important for student learning. Students should be present in lectures and laboratories. • Report and Seminar: - Students must prepare seminars and reports. • Laboratory skills: - Students must apply hygienic instructions and wear lab coat in the laboratory. • Quiz: - There will be quizzes for every laboratory test. • Homework: - There will be homework for lectures. • Exams: - there will be midterm and final Exam

<table>
<tr><td>Required Learning Materials</td><td colspan="5">• A hall for theoretical lectures with the presence Data-show device.
• Materials for the laboratory tests are prepared by the institute, and lab coat must be worn during working in laboratory.</td></tr>
<tr><td rowspan="11">Evaluation</td><td colspan="2">Task</td><td>Weight (Marks)</td><td>Due Week</td><td>Relevant Learning Outcome</td></tr>
<tr><td colspan="2">Paper Review</td><td></td><td></td><td></td></tr>
<tr><td rowspan="5">Assignments</td><td>Homework</td><td>6</td><td></td><td></td></tr>
<tr><td>Class Activity</td><td>4</td><td></td><td></td></tr>
<tr><td>Report</td><td>10</td><td></td><td></td></tr>
<tr><td>Seminar</td><td>10</td><td></td><td></td></tr>
<tr><td>Essay</td><td></td><td></td><td></td></tr>
<tr><td>Project</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Quiz</td><td>5</td><td></td><td></td></tr>
<tr><td colspan="2">Lab.</td><td>10</td><td></td><td></td></tr>
<tr><td colspan="2">Midterm Exam</td><td>15</td><td></td><td></td></tr>
<tr><td colspan="2">Final Exam</td><td>40</td><td></td><td></td></tr>
<tr><td colspan="2">Total</td><td>100</td><td></td><td></td></tr>
<tr><td>Specific learning outcome:</td><td colspan="5">At the end of the course the student should know the following: 1- What is Medical Microbiology
2- How to sterilize and disinfect the tested devices, instruments, and materials.
3- To demonstrate the difference between bacteria, fungi, parasite and viruses.
4- To know the difference between Gram positive and gram negative for choosing the best antibiotic.
5- To illustrate the characteristic of microorganism and the disease they cause.
6- To know sample collection and cultivation.
7- They must know how to identify bacteria, fungi, viruses, and parasites.</td></tr>
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	8- To explore the best treatment for bacterial infection by doing sensitivity test. 9- How to control microbial transmission. 10- They must have information to illustrate how the human body's immune system fights infection.
Course References:	Jawetz M, Adel berg E A, Brooks G F, Butel J S, Karen C C, and Morse S A (2019). Medical Microbiology, Twenty-Seventh Edition. McGraw-Hill Companies, Inc.; United States of America. Levinson's Review of Medical Microbiology and Immunology: A Guide to Clinical Infectious Disease, Eighteenth Edition. Peter Chin-Hong, Elizabeth A. Joyce, Manjiree Karandikar, Mehrdad Matloubian, Luis Alberto Rubio, Brian S. Schwartz, Warren E. Levinson. 2024. https://emedicodiary.com/book/view/371/lange-review-of-medical-microbiology-and-immunology. Cappuccino James and Sherman Natalie (2014). Microbiology: A Laboratory Manual. Cappuccino G C and Sherman N (2008). Microbiology: A Laboratory Manual. 8th ed. Pearson Benjamin Cummings, San Francisco. de la Maza L M, pazzio M T, Shigei J T and Peterson E M (2004). Color Atlas of Medical Bacteriology. ASM press Washington.

Course topics (Theory)	Week	Learning Outcome
Introduction to microbiology and its branches.	1	Enabling the students to know what is medical microbiology.
Types of Sterilization used in microbiology	2	How to sterilize and disinfect the devices, instruments, and materials.

Features and characteristics of bacterial cell structures and bacterial growth curve	3	To know bacterial cell structures and the difference between gram positive and gram-negative bacteria
Infection with Gram positive bacteria, staphylococcus, streptococcus, Clostridium, and others	4	To illustrate the characteristic of gram positive and the disease they cause.
Infection with Gram negative bacteria, Enterobacteriaceae, vibrio, and others	5	To illustrate the characteristic of gram negative and the disease they cause.
Antibiotic, bactericidal and bacteriostatic	6	To explore the best treatment for bacterial infection.
Introduction to medical parasitology	7	Understanding what is parasites and the disease they cause.
Entamoeba histolytica, Giardia lamblia, leishmania, Toxoplasma, plasmodium, and other blood parasites	8	To know types of parasites and the disease they cause and how to control its transmission.
Midterm Exam	9	
Introduction to mycology, yeasts and moulds.	10	Understanding what is fungi and the disease they cause
Introduction to virology	11	Understanding what is virus and the disease they cause
Immune system	12	To illustrate how the human body's immune system fights infection.
Final Exam		
Practical Topics	**Week**	**Learning Outcome**
Lab induction, laboratory instruments and devices, and Microscope.	1	To learn how to work in the laboratory, and the use of microscope and instruments.
Sterilization and disinfection.	2	How to sterilize and disinfect the devices and materials before and after using them.
Principle of staining, preparation of bacterial smear, simple stain, and gram stain.	3	To learn how to Identifying bacteria and by using microscopic characteristic and proper stains.
Preparation of culture media, basal media, differential media, enriched media, selective media.	4	To learn how to prepare media for bacterial cultivation and choosing a

		proper media for each type of bacteria.
Collection of samples, and cultivation of the samples.	5	To know types of sample collection and cultivation.
Antibiotic sensitivity test.	6	To explore the best treatment for bacteria by doing sensitivity test.
Entamoeba histolytica, Giardia lamblia and Toxoplasma,	7	To learn the difference between these parasites.
Plasmodium and other blood parasites	8	To learn the difference between these parasites.
Midterm Exam	9	
Cultivation of fungi.	10	To learn how to prepare media for Fungi cultivation.
Yeasts and moulds morphology	11	To learn the difference between yeasts and moulds.
Seminars	12	

Questions Example Design

Q1/ Choose the correct answer: - **(25M)**

1- ---------- is a Gram-positive round shaped bacterium,

a- Salmonella spp. b-*Staphylococcus aureus* c- *Clostridium botulinum* d- *Vibrio cholerae.*

Q2/ Define the followings: - **(25M)**

Pharmaceutical microbiology

Bactericidal

Q3/ Write about microbial control. **(25M)**

Q4/Enumerate types of applied microbiology. **(25M)**

Extra notes:

External Evaluator

The content of the course book has the information of the basic scientific subjects. The type and the quality of the questions suits students. The syllabus contains all the main aspects of Medical Microbiology.

Dr. Beriwan Abdulqadir Ali