Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Erbil Technical Health and Medical College	
Department	MLT	
Module Name	Diagnostic Microbiology	
Module Code	DMB04	
Degree	Bachler	
Semester	8	
Qualification	Ph D Medical Microbiology	
Scientific Title	Assistant professor	
ECTS (Credits)	6	
Module type	Prerequisite ☐ Core ■ Assist. ☐	
Weekly hours (Theory)	2 hrs class	(30)Total hrs Workload
Weekly hours (Practical)	2hrs class	(30)Total hrs Workload
Number of Weeks	15	
Lecturer (Theory)	Assist. Prof. Dr. Sazan Moffaq Abdulaziz	
E-Mail & Mobile NO.	sazan.abdulaziz@epu.edu.iq	
Lecturer (Practical)	Sara Ibrahim Othman	
E-Mail & Mobile NO.	sara.othman@epu.edu.iq	
Websites		

Course Book

<table>
<tr><td>Course Description</td><td colspan="5">The course (Lectures and laboratory sessions) is concentrating on the detection and identification of infectious agents in the clinical laboratory, followed by determination of susceptibility to antimicrobial agents. The course will cover general principles of infectious diseases and laboratory diagnosis. The largest section consists of extensive discussion of groups of infectious agents (bacteria, fungi and viruses) and the diseases that they produce.</td></tr>
<tr><td>Course objectives</td><td colspan="5">1. Identify and adhere to established guidelines for working with potential pathogens to ensure biohazard safety;
2. Evaluate acceptability of specimens for potential pathogens
3. List and demonstrate steps of proper procedure for microbiological staining, and interpret results for use with identification of pathogens;
4. Cultivate and isolate infectious agents
5. Apply biochemical, serological and molecular methods in the diagnosis of uncultivable microorganisms.
6. Interpret antimicrobial susceptibility testing.</td></tr>
<tr><td>Student's obligation</td><td colspan="5">The role of students and their obligations throughout the academic year are:

1. Preparing for class (Seminars, quizzes, reports and exams &other activity)
2. Willing to work hard to complete course activities.
3. Willing to bring their life experiences into the class to enrich discussions.
4. Demonstrate an ability to work in groups and exchange ideas concerning course-related topics.</td></tr>
<tr><td>Required Learning Materials</td><td colspan="5">1. PPTs
2. Videos
3. Labs
4. Textbooks
5. Articles</td></tr>
<tr><td rowspan="5">Evaluation</td><td colspan="2">Task</td><td>Weight (Marks)</td><td>Due Week</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="3">Assign ments</td><td>Homework</td><td>5%</td><td></td><td></td></tr>
<tr><td>Class Activity</td><td>2%</td><td></td><td></td></tr>
<tr><td>Seminar</td><td>10%</td><td></td><td></td></tr>
<tr><td colspan="2">Quiz</td><td>8%</td><td></td><td></td></tr>
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	Lab reports	10%		
	Midterm Exam	25		
	Final Exam	40		
	Total	100		

Specific learning outcome:	By the end of the course, the students will be able to: 1. Describe pre-examination procedures applicable to diagnostic microbiology. 2. Describe post-examination procedures applicable to diagnostic microbiology. 3. Describe or perform standard microbiological staining techniques. 4. Discuss the correct culture set up and incubation of microbial specimens. 5. Interpret the results of microbial cultures, stains, or tests. 6. Explain the principles behind different media utilized for growth, isolation, or identification of microbes. 7. Use standard microbial techniques or procedures to identify unknown organisms. 8. Describe the use of molecular or serological methods for the detection or identification of microbes. 9. Explain or demonstrate the proper aseptic technique for working with microbes in the clinical laboratory. 10. Explain the principles behind standard laboratory methods of antimicrobial testing. 11. Explain the clinical significance of diagnostic microbiology tests or results.
Course References:	**1.** Koneman's Color Atlas and Textbook of Diagnostic Microbiology. Gary W. Procop, Deirdre L. Church, Geraldine S. Hall, William M. Janda, Elmer W. Koneman, Paul C. Schreckenberger, Gail L. Woods. 7th ed., 2017. Wolters Kluwer. 2. Textbook of Diagnostic Microbiology. Connie R. Mahon and Donald C. Lehman 6th ed., 2019. St. Louis, Missouri: Elsevier.

Course topics (Theory)	**Week**	**Learning Outcome**
Understanding Infectious Diseases	1	Understanding the relationship between parasite and host
Phases of the Diagnostic Cycle 1. *The Preanalytic Phase* 2. *The analytic phase* A. *Macroscopical examination* B. *Microscopical examination*	2-8	Understanding how to deal with clinical specimens, detect and identify infectious agents in the clinical laboratory, followed by determination of susceptibility to antimicrobial agents.

and staining C. *Primary inoculation into culture media* D. *Biochemical identification* E. *Immunological identification* F. *Molecular identification* G. *Antibiotic susceptibility*		
Identification of Staphylococci	9	Applying the previous steps on the identification of Gram positive bacteria
Identification of E. coli	10	Applying the previous steps on the identification of Gram negative bacteria
Identification of Hepatitis B and C virus	11	Applying the previous steps on the identification of viruses
Identification of Candidiasis	12	Applying the previous steps on the identification fungi
Practical Topics	**Week**	**Learning Outcome**
Specimen collection and criteria of clinical specimens	1	Understanding how to deal with clinical specimens, detect and identify infectious agents in the
Morphology and Staining Characteristics of Microorganisms	2-4	Understanding how to deal with clinical specimens, detect and identify infectious agents in the clinical laboratory
Primary isolation into culture media	5	Understanding how to deal with clinical specimens, detect and identify infectious agents in the clinical laboratory
Biochemical procedures	6-7	Understanding how to deal with clinical specimens, detect and identify infectious agents in the clinical laboratory
Antibiotic sensitivity testing	8	Determination of microbial susceptibility to antimicrobial agents.
Identification of Gram positive bacteria	9	Applying the previous steps on the identification of Gram positive bacteria
Identification of Gram negative bacteria	10-11	Applying the previous steps on the identification of Gram negative bacteria

Identification of viruses	12	Applying the previous steps on the identification of viruses