

## Module (Course Syllabus) Catalogue

### 2022-2023

College/ Institute	Shaqalawa Technical College	
Department	MLT - Morning	
Module Name	Medical Microbiology	
Module Code	MIC 305	
Semester	Third semester	
Credits	6ECTS	
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours		
Weekly hours (Theory)	(2) hr Class	(4) hr Workload
Weekly hours (Practical)	(2) hr Class	(4) hr Workload
Lecturer (Theory)	Assist. Prof. Dr. Zuber I. Hassan	
E-Mail & Mobile NO.	<a href="mailto:muayad.mahmud@epu.edu.iq">muayad.mahmud@epu.edu.iq</a>	
Lecturer (Practical)	<a href="mailto:muayad.mahmud@epu.edu.iq">muayad.mahmud@epu.edu.iq</a>	
E-Mail & Mobile NO.	+9647504773872	

# Course Book

<b>Course Description</b>	<ol style="list-style-type: none"><li>1- Microbiology: is one of the most important branches of biological science, it is the study of microbes and how they influence life.</li><li>2- It gives knowledge about their effects on food which includes spoilage, fermentation, decay, food poisoning and formation of toxins</li><li>3- It studies the development of diseases and how microbes can be used to make our health better with vaccination, chemotherapy, immunotherapy, use of probiotics, it also includes the study of disease control which embodies infection control, treatment and quarantine.</li><li>4- Concept of microbiology: Microbiology is the study of microorganisms, which are unicellular or cell-cluster microscopic organisms. This includes eukaryotes such as fungi and protists and prokaryotes such as bacteria and certain algae. Viruses are also included. Microbiology subdivided into divisions including bacteriology, virology, mycology, parasitology and others. A scientist who specializes in the area of microbiology is called a microbiologist.</li></ol>
<b>Course objectives</b>	<ul style="list-style-type: none"><li>• define the science of microbiology and describe some of the general methods used in the study of microorganisms</li><li>• discuss the historical concept of spontaneous generation and the experiments that were performed to disprove this erroneous idea</li><li>• describe some of the various activities of microorganisms that are beneficial to humans</li><li>• describe procaryotic and eucaryotic morphology, the two</li></ul>

	<p>types of cellular anatomy, and also the distribution of microorganisms among the various kingdoms or domains in which living organisms are categorized</p> <ul style="list-style-type: none"> <li>• discuss the importance of the field of microbiology to other areas of biology and to general human welfare</li> </ul>
<b>Student's obligation</b>	<ul style="list-style-type: none"> <li>• Students are responsible for all course material/Assignments on the day they are presented or due. Carefully read through the following course guidelines: <ul style="list-style-type: none"> <li>• Assignments are due at the beginning of the class period on the date/time designated by the instructor. Late coursework is not accepted (e.g. projects, reports, papers...), unless otherwise indicated by the instructor. Work will only be accepted in an emergency situation.</li> <li>• Missed class notes are not provided by the instructor and must be obtained from other students. See missed lab session below for more information.</li> <li>• Missed exams and quizzes. Lab exams are only offered at specified times and must be taken at that time. Exceptions to this will only be made for an extreme emergency (to be determined by the instructor). Missed pre-lab quizzes may not be made up and will result in a grade of zero for the missed quiz.</li> <li>• Missed lab session (excludes lab exam day). If space is available you will be expected to attend another lab session to complete assigned work (you must contact your instructor to arrange this within 24 hours of the missed session). If this is not possible, and you are given an excused absence</li> <li>• Punctuality is expected for each lab session. Labs begin promptly at the start of the session. Any missed quizzes or work (bonus or otherwise) will be forfeited and a grade of zero will be assigned due to tardiness.</li> <li>• Course Work - Incorrect content, formatting, general appearance, spelling, and grammar will result in point deductions from a student's work.</li> <li>• Cell phones and other electronic devices must be turned off while you are in class. During assessments electronic devices that are on may result in a forfeiture of the assessment.</li> </ul> </li> </ul>
<b>Required Learning Materials</b>	Hall, projector, lab materials
<b>Assessment scheme</b>	<p>16% Mid Term (Theory and practical)  4% Quiz  40% Assignment (report, paper, homework, seminar..)  25% final practical</p>

	15% final theory	
<b>Specific learning outcome:</b>	<p>1- Ability to develop general knowledge in physiotherapy and understand the subjects of the module</p> <p>2- Ability to understand and use, of general anatomy in physiotherapy.</p> <p>3- Demonstrate the ability to think critically and solve problems</p> <p>4-Ability to apply knowledge in practice</p> <p>5- Ability to make reasoned decision.</p> <p>6-Demonstrates research skills to investigate, evaluate position of it</p>	
<b>Course References:</b>	<p>1- Talaro, K., Chess, B., Foundations in Microbiology, 8th Ed.</p> <p>2- Lammert, John M., Techniques in Microbiology A Student Handbook.</p> <p>3- Howell, D., BIOL 207A Microbiology Laboratory Supplement (current semester)</p> <p>4. Leboffe, M., A Photographic Atlas for the Microbiology Laboratory, 4th Edition.</p>	
<b>Course topics (Theory)</b>	<b>Week</b>	<b>Learning Outcome</b>
1.General introduction Historical Background & classification of microorganisms	1	1, 2 &5
Introduction to Bacteria Classification / Morphology Bacterial Structures / Bacterial replication	2	2,3&4
. infections, classification of infections, source of infections, Methods of transmission of infections	3	1, 3, &5
Toxigenicity, endotoxins, exotoxins	4	1,2,3,4&6
Staphylococcus, general characters, morphology, pathogenic strains.	5	1&3
Streptococcus, general characters, morphology, pathogenic strains.	6	1, 2, 4&6
Neisseria, general characters, morphology, pathogenic	7	1, 3& 5

strains.		
Corynbacterium, general characters, morphology, pathogenic strains.	8	1,2&4
Mycobacterium, general characters, morphology, pathogenic strains.	9	1,3,4 &5
. Bacillus, general characters, morphology, pathogenic strains.	10	1,2&5
Enterobacteriaceae, e. coli, general characters, morphology, pathogenic strains.	11	1&5
Salmonella, general characters, morphology, pathogenic strains.	12	1.2.4&5
<b>Practical Topics</b>	<b>Week</b>	<b>Learning Outcome</b>
Introduction, safety role, methods of sterilization. Cultural media, types of cultural media	1	1, 2 &5
Streaking methods , Prepare smear, simple stain	2	2,3&4
Gram stain, Differential stain, acid fast stain	3	1, 3, &5
Motility of bacteria	4	1,2,3,4&6
Staphylococcus Sp. General characters, biochemical test, culturing bacteria	5	1&3
Homophiles bacteria	6	1, 2, 4&6
Streptococcus Sp. General characters, biochemical test, culturing bacteria	7	1, 3& 5
Escherichia Sp. General characters, biochemical test, culturing bacteria	8	1,2&4
E.coli General characters, biochemical test, culturing bacteria	9	1,3,4 &5
Salmonella General characters, biochemical test, culturing bacteria	10	1,2&5
Shigella General characters, biochemical test, culturing bacteria	11	1&5
Pseudomonas sp. General characters, biochemical test, culturing bacteria	12	1.2.4&5
<p><b>Compositional</b>  What are the types of infections, classify them  The lodgment and multiplication of organism in the tissue of host called Infection.  Classification of Infection</p> <ol style="list-style-type: none"> <li>1) Primary Infection: initial infection with organism in host called primary infection.</li> <li>2) Reinfection: subsequent infection by the same organism in the host called</li> </ol>		

reinfection.

- 3) Secondary Infection: when in the host whose resistance is lowered by preexisting infectious disease, a new organism may set up an infection.
- 4) Cross Infection: when a patient suffering from a disease and new infection is set up from another host or external source.
- 5) Nosocomial Infection: cross infection occurring in hospital is called Nosocomial infection.

2. True or false type of exams:

Answer with true or false:

- Exotoxin is Heat labile proteins.
- Nosocomial Infection: cross infection occurring in hospital
- the gelatinous secretion of bacteria which gets organized as a thick coat around cell wall and is known as slime layer.

### **Extra notes:**

### **External Evaluator**

I do approve the content of this course-book. It does cover the general concepts of Medical Microbiology in MLT. The topics are broad and are aimed to equip students with required knowledge to enable them to understand the bacteriology concept of the MLT equipment in latter stages.

Assist. Prof.

