	Ministry of Higher Education and Scientific Research - Iraq University AL Muthanaa College of Applied of Medical Sciences Department of Clinical Laboratories	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	PRINCIPLE OF MICROBIOLOGY			**Module Delivery**	
Module Type	CORE			✓ **Theory** ✓ **Lecture** ✓ **Lab** ✓ **Discussion** **Practical experiments** ✓ **Seminar**	
Module Code	PAA1208				
ECTS Credits	7				
SWL (hr/sem)	150				
Module Level	1st		**Semester of Delivery**	2nd	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Dr. Dhifaf Jabbar Shamran		**e-mail**	dhifaf15@mu.edu.iq	
Module Leader's Acad. Title	Assistant professor		**Module Leader's Qualification**	PHD.	
Module Tutor	Bushra Hussein Alwan		**e-mail**	bushra.hussein@mu.edu.iq	
Peer Reviewer Name			**e-mail**		
Review Committee Approval			**Version Number**	1	

Relation With Other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	-
Co-requisites module	None	**Semester**	-

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	This course provides the students with basic theoretical and practical aspects of various groups of microorganisms that include bacteriology, virology, and mycology. It also introduces (through Lab work) the basic concepts of disinfectants, antiseptics, preservatives, Ames test, methods of sterilization, aseptic techniques, Staining technique, Types of culture media used in microbial growth and AST technique.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	At the end of this module the students will be able to know the following: 1. Understanding different theoretical terms that related to microbiology and the most important tools and equipment in microbiology lab. 2. Understanding the classification of micro-organism 3. The importance of using microscope in microbiology 4. Understand microbial growth, metabolism, nutritional requirements, microbial cultivation. 5. understand the most important factors that affect the microbial growth. 6. understand the basic structure and pathogenic steps for bacteria, Fungi, and viruses. 7. Understand basic structure of genetic material of microorganisms. 8. Recognize the concepts of antimicrobial agents, sterilization, and disinfections. 9. understand basic concepts of immune response against microbial infections.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following: 1-Introduction: What is microbiology? And Why is microbiology important? Description of Light microscopy and Electron microscopy (2)hrs 2- Cell Structure and Organization: The prokaryotic cell, The eukaryotic cell, Cell division in prokaryotes and eukaryotes (4)hrs 3. Microbial Nutrition and Cultivation: Nutritional categories, How do

	nutrients get into the microbial cell? (2) hrs 4- Microbial Growth: Estimation of microbial numbers, Factors affecting microbial growth, The kinetics of microbial growth (2) hrs 5- The Fungi: General biology of the Fungi and fungal structure, Classification of the Fungi. (2)hrs 6- virus: What are viruses, What are Structure and component, Replication of viruses (2)hrs 7. Classification of viruses: How they classify viruses, Factors that associated with classification of viruses (2)hrs 8. The microbial genetics: How do we know genes are made of DNA, DNA replication, Gen transfer between microorganism (4)hrs. 9. The Control of Microorganisms: Sterilization, Disinfection, The kinetics of cell death (2)hrs. 10. Antimicrobial Agents Antibiotics: Resistance to antibiotics, Antibiotic susceptibility testing, Anti-fungal agents, Antiviral agents (4)hrs. 11. Immune response to infection: What is natural immune system, Component of natural immune system , Cells of natural immune response, What adaptive immune system, Component of adaptive immune system , Cells of adaptive immune response (4)hrs.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Lecture Discussion Co-operative learning Experimental Learning Problem-Based learning

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	4	15% (15)	3,6,9,12	LO#2,5
	Assignments or Home Work	1	5%(5)	5	LO#11
	Projects / Lab.	1	5% (5)	2	LO# 3,8
	Report	1	5% (5)	1	LO# 1
	Seminar	1	5%(5)	4	LO# 11
	Discussion	1	5%(5)	7	LO# 7
Summative assessment	Midterm Exam	1hr.	10% (10)	8	LO# 1-7
	Final Exam	2 hr.	50% (50)	16	All
Total assessment			100 %		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to microbiology
Week 2	Prokaryotic cell structure
Week 3	Eukaryotic cell structure
Week 4	Microbial nutrition
Week 5	Microbial growth
Week 6	Fungi
Week 7	Virus
Week 8	Mid exam
Week 9	Microbial genetics
Week 10	Control on microbial growth
Week 11	Antimicrobial agents
Week 12	Antiviral and antifungal
Week 13	Nonspecific (Innate) immunity
Week 14	Specific (Adaptive) immunity
Week 15	**Seminar**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الأسبوعي للمختبر	
	Material Covered
Week 1	The microscope and lab equipment
Week 2	Safety precautions
Week 3	Sterilization and disinfection
Week 4	Types of culture media
Week 5	Staining of bacteria
Week 6	Lab project
Week 7	Virus detection and Isolation
Week 8	Virus detection and Isolation
Week 9	Fungi culturing
Week 10	Antibiotic sensitivity
Week 11	Lab project
Week 12	Ab-Ag interaction
Week 13	Experiment of Ab-Ag agglutination
Week14	Estimation of bacterial number
Week 15	Identification of unknown sample

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Essential microbiology: stuart hogg, standard operative procedures in microbiology for laboratory technicians dr. Saroj hooja dr. Nita pal	No
Recommended Texts	Lippincott, richard a harvey, cynthia nau cornelissen bruce d. Fisher, third eddition 2013	
Websites	https://www.perlego.com/book/1008144/essential-microbiology-pdf	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** – Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C – Good	جيد	70 - 79	Sound work with notable errors
	D – Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E – Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي