	Ministry of Higher Education and Scientific Research - Iraq University of Technology Biomedical Engineering Department	

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Biology**			**Module Delivery**	
Module Type	**Core**			☒**Theory** ☒**Lecture** ☐ **Lab** ☐**Tutorial** ☐**Practical** ☒**Seminar**	
Module Code	**BIOL121**				
ECTS Credits	**6**				
SWL (hr/sem)	**150**				
Module Level	1		**Semester of Delivery**	1	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Name: Lect.Dr. Inas Saad Mohammed		**e-mail**	E-mail: Inas.S.Mohammed @uotechnology.edu.iq	
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/06/2023		**Version Number**	1.0	

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	• Define basic biological concepts and processes. • Describe levels of organization and related functions in plants and animals. • Identify the characteristics and basic needs of living organisms. • Explain the processes of growth and development in individuals and populations. • Describe the relationships between organisms and their environment. • Identify impacts on ecosystems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- Demonstrate the ability to use discipline specific research techniques. 2- Analyze and interpret data and scientific literature. 3- Synthesize data and draw appropriate inferences. 4- Understanding of living systems and to allow one to consider the systems in relationship to the self and other organisms in the natural environment. 5- Recognize organelles and other cell structures found in eukaryotic and prokaryotic cells and compare between them. 6- Describe the structure of a chromosome (DNA and RNA). 7- Describe viruses are non-cellular structures with a nucleic acid core (either DNA or RNA) and a capsid made of protein, and that some viruses have an outer envelope made of Phospholipids. 8- Describe structure of protein (an amino acid). 9- Describe structure of enzyme are catalysts in biochemical reactions and understand its function. 10- Describe bacteria structure and it's classifying bacteria at a molecular level.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. <u>Part A:</u> 1- Define about biology, Biological principles, cell structure, and cell metabolism. 2- List level of organization and biosphere. 3- Explain about diffusion and osmosis, Factors affecting the exchange of Materials across Membranes, active and passive transport. 4- Fundamental properties (Characteristic) of biomolecule, carbohydrate, lipid, protein, enzyme and DNA structure. 5- Define, structure and classification of bacteria, genotype and phenotype, Medical bacteriology and list of bacteriology test.

	6- Characteristics of virus, virus structure, viral envelope and prions. [15hrs]. Part B: Cell fractionation, properties of Eukaryotic and prokaryotic cells [5 hrs] Properties of genetic and evaluation, application of genetic technique. [10 hrs] Molecular biology, Infectious disease, Immunity [10 hrs]. Case studies and activities, seminars and dissections [8].

Course Description	
Course Description	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of assignments involving some problem solving that are interesting to the students.

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the lecture, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	84	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	52	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3

Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.				
	Report				
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction of Biology
Week 2	Cell biology
Week 3	Organization of organism
Week 4	Diffusion
Week 5	Biological molecule
Week 6	Bacteriology
Week 7	Virology
Week 8	Molecular biology
Week 9	Infectious disease
Week 10	Immunity
Week 11	Genetics and Evolution
Week 12	Genetic technology
Week 13	Energy and respiration
Week 14	Gas exchange
Week 15	Photosynthesis
Week 16	Preparatory week before the final Exam

Total assessment	100% (100 Marks)		

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Madigan, MT., Martinko, JM. & Parker J. (2000). Brock's Biology of Microorganisms, 9th edn. Englewood Cliffs, NJ: Prentice Hall.	No
Recommended Texts	Biology Data Book, *2nd ed*., edited by Phillip L. Altman and Dorothy Dittmer. Federaton of American Societies of Experimental Biology.	No
Websites	NCBI Genome Guide. http://www.ncbi.nlm.nih.gov/genome/guide/human .	

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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.