جمهورية العراق
وزارة التعليم العالي والبحث العلمي

جامعة المستقبل

كلية العلوم

قسم التقنيات الاحيائية الطبية

MODULE DESCRIPTION FORM
نموذج وصف المادة الدراسية

Module Information					
Module Title	**Principle of Biotechnology**			**Module Delivery**	
Module Type	**Basic**			☒**Theory** ☒**Lecture** ☒**Lab** ☐**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	**UOMU0307013**				
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	**Sarah Raheem Hamza**		**e-mail**	Sarah.raheem.hamza@uomus.edu.iq	
Module Leader's Acad. Title			**Module Leader's Qualification**	MS.c	
Module Tutor	Name (if available)		**e-mail**	E-mail	
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date			**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module		**Semester**	
Co-requisites module		**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Objectives أهداف المادة الدراسية	1- To understand the nature and properties of principle biotechnology. 2- To provide scientific understanding of application of principles biotechnology and nanotechnology in agriculture, health and environmental conservation.
Module Learning Outcomes	After successful completion of the course, the student will be able to: 1. Familiarity with working principles, tools and techniques in the field of
تاجرخم ملعتلا ةداملل ةيساردلا	principle of biotechnology. 2. Understanding of the strengths, limitations and potential uses of principle and applications of biotechnology.
Indicative Contents المحتويات الإرشادية	Student responsibilities: 1. Study of course materials as specified by the instructor 2. Timely submission of given class assignment

Learning and Teaching Strategies تايجيتارتسا ملعتلا ميلعتلاو	
Strategies	1. Classroom lectures and discussions. 2. Case studies and examples from original research articles.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اعوبسا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	71	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1
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**	3	10	4, 6, 10	#1 and#2, #3-#5, #9
	Assignments	2	10	13 and 14	#1 and #12
	Projects / Lab.	1	10	continuous	all
	Report	1	10	15	#14
Summative assessment	**Midterm Exam**	2h	10	7	#1-#6, #8-#14
	Final Exam	3h	50	16	all
Total assessment			100% (100 Marks)		

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Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction to Biotechnology**
Week 2	**Principles of Plant biotechnology**
Week 3	**Principles of Medicinal plants**
Week 4	**Principles of Microbial plant biotechnology**
Week 5	**Principles of microbial Biotechnology**
Week 6	**Principles of Medical Biotechnology**
Week 7	**Mid-term Exam**
Week 8	**Principles of Cytogenetic**

Week 9	**Principles of Nucleic acids**
Week 10	**Principles of DNA technology**
Week 11	**Principles of DNA markers**
Week 12	**Principles of DNA sequencing**
Week 13	**Application of DNA technology**
Week 14	**Principles of Forensic biology**
Week 15	**Last-term Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	**Laboratory safety and security 1**
Week 2	**Laboratory safety and security 2**
Week 3	**Laboratory equipment: Microscope**
Week 4	**Laboratory equipment: Pipette**
Week 5	**Laboratory equipment: Balance**
Week 6	**Mid-term Exam**
Week 7	**Analysis methods in biotechnology: PCR 1**
Week 8	**Analysis methods in biotechnology: PCR 2**
Week 9	**Analysis methods in biotechnology: PCR 3**
Week 10	**Analysis methods in biotechnology: Electrophoresis 1**
Week 11	**Analysis methods in biotechnology: Electrophoresis 2**
Week 12	**Analysis methods in biotechnology: Gel documentation**
Week 13	**Review**
Week 14	**Final exam**

Learning and Teaching Resources رداصم ملعتلا سيردتلاو		
	Text	**Available in the Library?**
Required Texts	**Christina A. Crawford, MS Ed .2018. Principles of Biotechnology. Salem Press, A Division of EBSCO Information Services, Inc., and Grey House Publishing, Inc.**	

Recommended Texts	**Christina A. Crawford, MS Ed .2018. Principles of Biotechnology. Salem Press, A Division of EBSCO Information Services, Inc., and Grey House Publishing, Inc.**	
Websites		

Grading Scheme ططخم تاجردلا				
Group	**Grade**	التقدير	**Marks %**	**Definition**
Success Group (50 - 100)	**A** - Excellent	زايتما	90 - 100	Outstanding Performance
	B - Very Good	ديج ادج	80 - 89	Above average with some errors
	C - Good	ديج	70 - 79	Sound work with notable errors
	D - Satisfactory	طسوتم	60 - 69	Fair but with major shortcomings
	E - Sufficient	لوبقم	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.