وزارة التعليم العالي والبحث العلمي
جامعة المستقبل
كلية العلوم
قسم الكيمياء الحياتية

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Biochemical techniques			**Module Delivery**	
Module Type	core			☒**Theory** ☐**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	UOMU036241				
ECTS Credits	7				
SWL (hr/sem)	175				
Module Level	2		**Semester of Delivery**	2	
Administering Department	Dept. of Biochemistry		**College**	College of Science	
Module Leader			**e-mail**		
Module Leader's Acad. Title			**Module Leader's Qualification**	PhD	
Module Tutor			**e-mail**		
Peer Reviewer Name			**e-mail**		
Review Committee Approval Date			**Version Number**	1.0	

RelationwithOtherModules 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	These module aims provide a roadmap for the course, outlining the key learning outcomes and skills that students are expected to develop throughout their engagement with biochemical techniques. They serve as a guide for structuring the curriculum, designing assessments, and evaluating student progress.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of this course, students should be able to: 1. Understand the principles and concepts underlying common biochemical techniques used in research and analysis. 2. Demonstrate proficiency in performing a range of laboratory techniques essential for biochemical experimentation. 3. Analyze and interpret experimental data obtained from biochemical assays and experiments accurately. 4. Develop critical thinking skills to troubleshoot experimental challenges and optimize protocols for improved results. 5. Apply theoretical knowledge of biochemical techniques to design and execute experiments independently. 6. Demonstrate effective communication skills in presenting experimental findings and data analysis.
Indicative Contents المحتويات الإرشادية	
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 exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials, and by considering types of simple experiments involving some sampling activities that are interesting to the students.

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	79	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	5.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	96	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	**Weight (Marks)**	**Week Due**	**Relevant Learning Outcome**
Formative assessment	**Quizzes**	2	5% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects / Lab.	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	3hr	50% (50)	15	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظر ي	
	Material Covered
Week 1	Safety measurement and reliable data
Week 2	classification of analytical techniques
Week 3	Spectroscopic Technique , Beer-limber s law and calibration curve
Week 4	Chromatography, Principle and technique for separation
Week 5	Electrophoresis
Week 6	Kinetic analysis of enzymes and final assessments
Week 7	Mid Exam
Week 8	Nucleic Acid Techniques
Week 9	PCR(Polymerase chain Reaction)
Week 10	Thin – layer chromatography(TLC)
Week 11	Enzyme – linked immunosorbent assay(ELIZA)
Week 12	Atomic absorption (Principle and application)
Week 13	Immunoassay technique
Week 14	Data Analysis in Biochemistry
Week 15	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1 -2	Introduction to basic laboratory techniques (e.g., pipetting, centrifugation)
Week 2 -4	UV-Visible Spectroscopy for quantifying biomolecule
Week 3	Centrifugation
Week 4	Determination of enzyme activity using spectrophotometric assays
Week 5	
Week 6	

Week 7	
Week 8	
Week9	
Week 10	
Week 11	
Week 12	
Week 13	
Week 14	
Week 15	

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	· **Principles and Techniques of Biochemistry and Molecular Biology" by Wilson and Walker** - This comprehensive textbook covers a wide range of biochemical techniques, including protein purification, enzyme assays, nucleic acid techniques, and more.	Yes
Recommended Texts	.	
Websites	Bio-protocol - A platform that provides detailed protocols and step-by-step procedures for a wide range of biochemical and molecular biology techniques.	

APPENDIX:

GRADING SCHEME مخطط الدرجا ت				
Group	**Grade**	التقدي ر	**Marks (%)**	**Definition**
Success Group (50 - 100)	**A** - Excellent	امتيا ز	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 بقرا ر	(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 يف وزارة التعليم العا يل والبحث العل ي م