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	Basic Biochemistry	**Module Delivery**	
Module Type	Core	☒**Theory** ☐**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☐**Seminar**	
Module Code	UOMU036231		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	2	**Semester of Delivery**	1
Administering Department	Dept. of Biochemistry	**College**	College of Science
Module Leader		**e-mail**	
Module Leader's Acad. Title		**Module Leader's Qualification**	
Module Tutor		**e-mail**	
Peer Reviewer Name		**e-mail**	
Review Committee Approval		**Version Number**	

RelationwithOtherModules
العلاقة مع المواد الدراسية الأخر ى

Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادي ة	
Module Aims أهداف المادة الدراسية	1-This course regarded as an introduction to basic biochemistry and will be useful for students who want to study clinical chemistry. Biochemistry is an introductory module providing the essentials for understanding all living processes. You will study protein structure, enzyme kinetics and basic metabolism; understanding how each of these processes function and shape the living cell. 2- understanding the chemical basis which allows biological molecules to give rise to the processes that occur within living cells and between cells, in turn relating greatly to the understanding of tissues and organs as well as organism structure and function. 3-The course uses simple protocols and available materials and instruments to understand Biochemical substances. -Some experiments were put to teach students how to work independently in the any Lab. - Modern lab researchers should know the principles of the biochemical methods of analysis and to learn the main theoretical statements. For it, medical Lab Science students have to get the minimum of manual skills during a research of biochemistry, eg. measuring out solutions and biological liquids, centrifugation, colorimetry of colored solutions, determination of pH, peculiarities of the technique of enzyme investigations etc.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Biochemistry is both life science and a chemical science - it explores the chemistry of living organisms and the molecular basis for the changes occurring in living cells. It uses the methods of chemistry, "Biochemistry has become the foundation for understanding all biological processes.

Indicative Contents المحتويات الإرشادية	1- Fundemental of biochemistry (10 hours) 2-Carbohydrates (10 hours) 3-Proteins (10 hours) 4- Lipid (10 hours) 5- Nucleic acid (10 hours) 6-Exam (3 hours)

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	65	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	135	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	9
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	200		

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	2	5% (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)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظر ي	
	Material Covered
Week 1	**Carbohydrates**: Simple and complex sugars
Week 2	energy storage (e.g., glucose, starch, glycogen)
Week 3	Structural functions (e.g., cellulose, chitin).
Week 4	**Proteins**: Composed of amino acids
Week 5	Protein structure, transport, and signaling roles.
Week 6	**Lipids**: Fats, oils, phospholipids, and steroids
Week 7	energy storage
Week 8	Membrane structure, and signaling.
Week 9	**Nucleic Acids**: DNA and RNA; carriers of genetic information
Week 10	Responsible for protein synthesis.
Week 11	Hormones and Signal Transduction
Week 12	Biochemical pathways triggered by hormones.
Week 13	**Enzymes b**iological catalysts that speed up chemical reactions.
Week 14	Concepts of enzyme structure, active site, substrate specificity, and enzyme kinetics.
Week 15	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered

Week 1	**Qualitative test& Quantitative Analysis**
Week 2	**Carbohydrates tests**
Week 3	Molish test, Iodine test, Benedict's test and Barfoed test.
Week 4	Seliwanoff's test, Osazone test, Athrone test and Dinitrosalicylic acid Method.
Week 5	Roe's method, Fehling's test, Somogyi-Nelson method and Mucic acid test.
Week 6	**Amino acids tests**
Week 7	Ehrlich Test, Nitroprusside Test, Sullivan and McCarthy's Test
Week 8	Ninhydrin Test, Isatin Test and Xanthoprotic test.
Week9	**Lipids tests**
Week 10	Ethanol emulsion Test, Acrolein Test, Sudan IV
Week 11	Iodine Value and Libermann-Burchard Method).
Week 12	**Nucleic acids**
Week 13	Diphenylamine Method, Fiske-Subbarow Method
Week 14	**Proteins**
Week 15	Biuret protein assay and Folin-Lowry's Method

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	HARPER, ILLUSTRATED BIOCHEMISTRY. Robert K. Murray David A.Bender 28TH EDITION	Yes
Recommended Texts	Organic chemistry ABrief Course. Robert c. Atkins Francis A. Carey chi Wi Ong	No
Websites		

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