	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Applied Pathological Analysis Department	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	Biochemistry			**Module Delivery**	
Module Type	CORE			☒ **Theory** ☒ **Lecture** **x Lab** ☒ **Tutorial** ☐ **Practical** ☒ **Seminar**	
Module Code	APPA218				
ECTS Credits	6				
SWL (hr/sem)	79				
Module Level		UGx11 1	**Semester of Delivery**		1
Administering Department		Applied Pathological Analysis	**College**	College of Science	
Module Leader	Dr. Khawla A. Kasar		**e-mail**	khawla.kasar@nahrainuniv.edu.iq	
Module Leader's Acad. Title		Assist. Prof	**Module Leader's Qualification**		Ph. D.
Module Tutor	Dr. Samar T. Hameed MSc. Amer Adnan		**e-mail**	samar.thamer@gmail.com amer.adnan@nahrainuniv.edu.iq	
Peer Reviewer Name		Dr. Khawla A. Kasar	**e-mail**	khawla.kasar@nahrainuniv.edu.iq	
Scientific Committee Approval Date		10/9/2024	**Version Number**		1.0
Laboratory Staff	Dr. Samar T. Hameed, MSc. Huda Ghazi Naser, MSc. Amer Adnan, MSc. Dania Emad Ibrahim, MSc. Omar Khalid Suhail, MSc. Alaa Waleed Qader, MSc. Ahlam Abdulla Alwan.				

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	None	**Semester**	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Learning Strategies: Encourage students to take organized notes during lectures. Provide practice questions and problem-solving exercises. Participate actively in group discussions and collaborative activities. Make use of textbooks, online resources, and supplementary materials to reinforce learning. Provide constructive feedback on assignments and assessments. Feedback helps students understand their strengths and areas for improvement. **Teaching Strategies:** - Encourage students to actively engage with the material through discussions and group activities to promote deeper understanding. - Deliver well-structured lectures that provide a clear overview of the topic. - Incorporate videos, animations, and interactive simulations to illustrate complex biological processes. - Assign readings or video lectures as homework and use class time for discussions and activities.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	47	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	53	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5

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**	4	10% (10)	3, 7, 10, 12	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 11	LO #1, 3, 6,8, and 12
	Projects / Lab.	1	10% (10)	Continuous	
	Report/ Lab.	1	10% (10)	7	LO #1, 5 and 9
Summative assessment	**Midterm Exam**	2 hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Week 1: Introduction to Biochemistry. - An overview of major life-sustaining mechanisms - A brief review of organic functional groups and reaction types. - Functional groups of organic biomolecules. - Living cell - Prokaryotes and Eukaryotes
Week 2	Week 2: Carbohydrates -Classification of carbohydrate -Chemical structure of carbohydrates -Monosaccharide structure -Importance of Monosaccharide
Week 3	The chemical reaction of carbohydrates
Week 4	Lipids -Lipid Classes -structure -Fatty acids and their derivatives
Week 5	Classification and function
Week 6	Properties

	-Membranes -Membranes structure -Membranes function
Week 7	Amino acid -amino acid structure -amino acid classes
Week 8	Amino acid reactions and peptides
Week 9	Protein Structure and functions
Week 10	Nucleic acids -Nucleic acid structure -Nucleic acid function
Week 11	DNA structure Chromosome and Chromatin Structure
Week 12	RNA
Week 13	Mid exam
Week 14	Preparation of the final exam

Delivery Plan (Weekly Lab. Syllabus) **المنهاج الاسبوعي للمختبر**	
Weeks	**Material Covered**
Week 1	Biochemistry lab Guideline
Week 2	**<u>Carbohydrates</u>** Qualitative tests for carbohydrate (monosaccharides) Molish test Benedict's test, Barfoed's test , Bile's test , Seliwanoff's test , Osazon test
Week 3	**<u>Carbohydrates</u>** Test of sucrose Diphenylamine test for fructose and sucrose Iodine test for poly saccharides

Week 4	**<u>Lipids</u>** Test for phospholipid Acrolein test for glycerol Potassium test for glycerol
Week 5	**<u>Lipids</u>** The copper acetate test The rancidity test
Week 6	**<u>Lipids</u>** Salkowski test for cholesterol Liebermann- Burchart test for Cholesterol
Week 7	**<u>Amino acid</u>** The solubility of amino acid The Ninhydrine reaction
Week 8	**<u>Amino acid</u>** The Xanthoprotiv reaction Millon's reaction
Week 9	**<u>Amino acid</u>** Lead sulphide test for cysteine and cyctine The nitoprusside test The Sakaguchi reaction
Week 10	**<u>Nucleic acids</u>** Extraction of total nucleic acids from plant tissue
Week 11	**<u>Nucleic acids</u>** Estimation of DNA by diphenylamine reaction
Week 12	**<u>Nucleic acids</u>** Determination of RNA by orcinol method
Week 13	**Unknown compound detection**

Week 14	**Preparation of final exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Introductory Practical Biochemistry. (2005). S. K. Sawhney, Randhir Singh. United Kingdom: Alpha Science International.	Yes
Recommended Texts		No
Websites		

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