	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	BIOORGANIC CHEMISTRY 1			**Module Delivery**	
Module Type	SUPPORT			☒**Theory** ☒**Lecture** ☐**Lab** ☒**Tutorial** ☐**Practical** ☒**Seminar**	
Module Code	APPA2111				
ECTS Credits	5				
SWL (hr/sem)	102				
Module Level		UGx11	**Semester of Delivery**		1
Administering Department		APPA	**College**	College of Science	
Module Leader	Dr. Wisam Kadhum H- Al-Hashemi		**e-mail**	Wisam.kadhim@nahrainuniv.edu.iq	
Module Leader's Acad. Title		Assistance Professor	**Module Leader's Qualification**		Ph.D.
Module Tutor	MSc. Ahmed Abd Temur MSc. Dania Emad Ibrahim		**e-mail**	ahmed.abed@nahrainuniv.edu.iq dania.emad@nahrainuniv.edu.iq	
Peer Reviewer Name		Khawla A. Kasar	**e-mail**	khawla.kasar@nahrainuniv.edu.iq	
Review Committee Approval		10\9\2024	**Version Number**		1

<table>
<tr><th colspan="4">Relation With Other Modules
العلاقة مع المواد الدراسية الأخرى</th></tr>
<tr><td>Prerequisite module</td><td>None</td><td>Semester</td><td>-</td></tr>
<tr><td>Co-requisites module</td><td>None</td><td>Semester</td><td>-</td></tr>
<tr><th colspan="4">Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</th></tr>
<tr><td>Module Aims
أهداف المادة الدراسية</td><td colspan="3">This 15-week course is designed to provide students with a

1. Bridge chemistry and biology:
• Understand the interrelationship: Students will learn how chemical principles underlie biological processes, fostering a deeper understanding of life's complexities.
• Apply chemical knowledge: The course will equip students to utilize chemical concepts to analyze and interpret biological phenomena.
2. Biochemical structures. We will study detailed aspects of the three-dimensional structure of proteins, and how this translates into differences in the function of these proteins. We will also examine the structures of DNA, RNA, and ribosomes, and how these structures are used in maintaining and communicating genetic information. We will also cover the synthesis of biopolymers – peptide synthesis from protected amino acids and DNA synthesis from nucleoside phosphoramidites.</td></tr>
<tr><td>Module Learning Outcomes

مخرجات التعلم للمادة الدراسية</td><td colspan="3">1- Understand the applications of chemistry in biological systems.

2- Explain the principles of biosynthesis and metabolism of compounds such as steroids, lipids, amino acids, peptides, proteins, vitamins, carbohydrates, and nucleic acids.

3- Apply modern organic techniques such as chromatography (TLC and column), separation methods</td></tr>
<tr><td>Indicative Contents
المحتويات الإرشادية</td><td colspan="3">Part A- brief review of general and classical organic chemistry
Chemical Bonding, , Naming of organic compounds and their families according to the functional group with main reactions, stereochemistry
Part B-bioorganic chemistry
Chemistry of biomolecules (carbohydrate, lipid, protein, and nucleic acids). Chemistry of metabolism (its catalysis and coenzymes)</td></tr>
<tr><th colspan="4">Learning and Teaching Strategies
استراتيجيات التعلم والتعليم</th></tr>
<tr><td>Strategies</td><td colspan="3">1- Dividing students into several groups and encourage them to work as a</td></tr>
</table>

	team 2- Several quizzes will be established to activate to ignite the spirit of competition 3- YouTube will be used in several lectures to attract students to the material 4- A lot of Homework will be asked to do from students to ensure that materials have been understudied

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	102	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	98	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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**	4	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	4	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	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Organic compounds families, Naming and functional groups
Week 2	Structures and main reactions

Week 3	Carbohydrates chemistry with stereo aspects
Week 4	Amino Acids, Peptides, and Proteins chemistry
Week 5	Lipids/Terpenes chemistry
Week 6	Heterocyclic Compounds ,
Week 7	Nucleic acids
Week 8	Mid exam
Week 9	Catalysis
Week 10	The Organic Mechanisms of the Coenzymes
Week 11	The Organic Mechanisms of the Coenzymes
Week 12	The Chemistry of Metabolism
Week 13	The Chemistry of Metabolism Cont.
Week 14	The Organic Chemistry of Drugs: Discovery and Design
Week 15	**Preparatory Week**

Learning and Teaching Resources
مصادر التعلم والتدريس

	Text	**Available in the Library?**
Required Texts	Customized P.Y. Bruice, Organic Chemistry with Study Guide and Solution Manual. 8th ed., Pearson. (You can also use the 6th edition of the book and Study Guide).	no
Recommended Texts	Ulf Diederichsen (Editor), Thisbe K. Lindhorst (Editor), B. Westermann (Editor), Ludger A. Wessjohann (Editor) **Bioorganic Chemistry: Highlights and New Aspects**	
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