	Ministry of Higher Education and Scientific Research - Iraq Al-Nahrain University College of Science Physics Department	

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title			**Module Delivery**	
Module Type	CORE		☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☒**Practical** ☒**Seminar**	
Module Code				
ECTS Credits	8			
SWL (hr/sem)				
Module Level			**Semester of Delivery**	
Administering Department	forensic science		**College**	Science
Module Leader	Dr. Shaimaa Imad Ali		**e-mail**	shaimaa.emad@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer		**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr. Shaimaa Imad Ali		**e-mail**	shaimaa.emad@nahrainuniv.edu.iq
Peer Reviewer Name	Dr. Shaimaa Imad Ali		**e-mail**	shaimaa.emad@nahrainuniv.edu.iq
Review Committee Approval	Shaimaa Imad Ali		**Version Number**	

Relation With Other Modules 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	This module aims to provide students with: 1. To study the chemical composition, structure, and biological roles of carbohydrates, lipids, proteins, enzymes, and vitamins. 2. To explain key metabolic processes, including glycolysis, gluconeogenesis, glycogen metabolism, lipid metabolism, and amino acid/protein metabolism. To understand energy production and regulation, including ATP synthesis, the electron transport chain, and oxidative phosphorylation. 3. To develop competence in performing qualitative and quantitative biochemical tests for carbohydrates, lipids, and proteins. To gain skills in recording, analyzing, and interpreting experimental results safely and accurately. **5.** To enable students to analyze biochemical data, link biochemical knowledge to physiological or pathological conditions, and solve related problems. **6.** To foster effective scientific communication, collaborative working, and self-directed learning for continuous professional development.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply safety protocols and proper handling of chemicals in the laboratory. 2. Analyze biochemical data and relate it to physiological or pathological conditions. 3. Record, analyze, and interpret experimental results accurately. 4. Describe the structure, classification, and function of carbohydrates, lipids, and proteins. 5. Explain metabolic pathways, including glycolysis, gluconeogenesis, glycogen metabolism, and lipid metabolism.
Indicative Contents المحتويات الإرشادية	تجارب باستعمال الاجهزة المختبرية كما هو مفصل في دليل المختبر
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Providing students with the basics and additional topics related to thinking outcomes

	- Discussing lesson topics that require thinking and analysis, with students participating in a mini-discussion group during the lecture. - Raising a set of intellectual questions during the lecture time, which increases and motivates students to analyze, conclude and reach the correct answer. - Giving students homework that requires self-explanation - Linking the lecture curriculum to practical applications, especially in our daily lives.

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**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	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	Carbohydrates Introduction
Week 2	Carbohydrates Classification and Structure
Week 3	Carbohydrate metabolism
Week 4	Glycolysis
Week 5	Gluconeogenesis
Week 6	Med exam
Week 7	Glycogen metabolism
Week 8	Lipids Introduction
Week 9	Types of lipids (fatty acids, phospholipids, cholesterol, triglycerides)
Week 10	Beta-Oxidation
Week 11	Ketone bodies metabolism
Week 12	Lipogenesis & Lipolysis
Week 13	The role of the liver in fat metabolism.
Week 14	Regulation of hormones (insulin, glucagon, adrenaline)
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: : Laboratory equipment's and Solubility test for carbohydrate
Week 2	Lab 2: Determination of Molish's Test and Fehling's Test
Week 3	Lab 3: Determination of Barford's Test and Seliwanoff's Test
Week 4	Lab 4: Determination of Iodine Test and Tollen Test
Week 5	Lab 5: Grease spot test and Sudan III/IV lipids Test
Week 6	Lab 6: Rancidity test and Copper acetate test and Test for Unsaturation
Week 7	Lab 7: Med exam
Week 8	Lab 8: final exam

Learning and Teaching Resources

مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Leininger Principles of Biochemistry (David Nelson, Michael Cox)	yes
Recommended Texts	Biochemistry (Berg, Tymoczko, Gatto)	yes
Websites	Khan Academy – Biochemistry Coursera / EdX NCBI Bookshelf	

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