Academic Program Description Form

University Name: *Al Nahrain*

Faculty/Institute: *Sciences*

Scientific Department: *Applied pathological Analysis*

Academic or Professional Program Name: *Applied pathological Analysis*

Final Certificate Name: *Applied pathological Analysis*

Academic System: *Bologna*

Description Preparation Date: *2024 / 9 / 10*

File Completion Date: *2024 / 12 / 19*

Signature: *KH*

Head of Department Name:

Khawla A. Kasar

Date: *29 / 12 / 2024*

Signature:

Scientific Associate Name:

Manaf Adnan Saleh

Date: *30 / 12 / 2024*

The file is checked by: *Orooba Nadhm*

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: *30 . 12 . 2024*

Signature:

Approval of the Dean

21st / 12 / 2024

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	HUMAN CYTOLOGY	**Module Delivery**
Module Type	CORE	☒Theory
Module Code	APPA112	☒Lecture
		☒Lab
ECTS Credits	9	☒Tutorial
SWL (hr/sem)	225	☐Practical ☒Seminar
Module Level	UGx11 1	**Semester of Delivery**	
Administering Department	Applied pathological Analysis	**College**	College of Science
Module Leader	Dr. Tania Tahseen Dr. Mustafa A. Hadid	**e-mail**	tania.tahseen@nahrainuniv.edu.iq hadid.m.a@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph. D.
Module Tutor	Dr. Ruaa Hameed Abdulridha Dr. Nawfal Haitham Shakir MSc. Saddam Yahya Diwan MSc. Zina Jabbar Ghaib	**e-mail**	ruaa.hameed@nahrainuniv.edu.iq nawfal.haitham@nahrainuniv.edu.iq saddam.yahya@nahrainuniv.edu.iq zina.j.ghaib@nahrainuniv.edu.iq
Peer Reviewer Name	Dr. Tania Tahseen Dr. Mustafa A. Hadid	**e-mail**	tania.tahseen@nahrainuniv.edu.iq hadid.m.a@nahrainuniv.edu.iq
Review Committee Approval		**Version Number**	1
Laboratory Staff	Dr. Ruaa Hameed, MSc. Hadeer Faris, MSc. Mays Abdulhadi, MSC. Zeena Murshed, MSc. Ahmed Jabbar, MSc. Eman Adnan Abdulmajeed, Athar Abdulrazaq Waheb, MSc. Saddam Yahya Diwan, MSc. Zainab Ali, MSC. Nada Mohammed, MSC. Alaa Mohsen.		

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	The course is designed to teach the students: 1. A comprehensive understanding of the structure, function, and process of cells and the human body. 2. Understand behavior of the cells 3. Unravel the complexities of living organisms at the cellular level. 4. Knowledge of cell biology improves understanding of the human body; how it works, and its place in the natural world.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	The students will be able to: 1. Understand the cells as the smallest unit of living organisms (definition, theory, and types of cells). Also, understand that cells are grouped into tissues, and tissues are organized into organs. 2. Another learning outcome is understanding cellular organization and reproduction. 3. Understand the genes and the structure of DNA and RNA molecules. 4. Understand the development of human body cells. 5. Studying cell biology forms the foundation for advancements in medical research, biotechnology, and our comprehension of life processes.		
Indicative Contents المحتويات الإرشادية	-In cytology, lectures typically cover the study of cells, including cell structure, function, and identification. -Topics may include cell types, organelles, and cell cycle stages. -The lab's practical aspects involve slide preparation and microscopic examination to identify normal and abnormal cells. -Specific areas like cytoplasmic and nuclear features are often discussed. Cover techniques for sample collection and processing as well.		
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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	131	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

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	Introduction and definition of Cytology. An overview of the cells as they are the smallest unit of living organisms (definition, theory, and types of cells). Understand that cells are grouped into tissues and tissues are organized into organs.
Week 2	Recognize cell structures as seen with a light and transmission electron microscope.
Week 3	Study the structures and functions of the cell (Part 1), including the cell membrane, mitochondria, endoplasmic reticulum, etc.
Week 4	Study the structures and functions of the cell (Part 2), including the cell membrane, mitochondria, Golgi apparatuses, endoplasmic reticulum, etc.
Week 5	Describe the structure of DNA molecules as two strands coiled to form a double helix containing nucleotides, strands linked by complementary bases, and bases linked by hydrogen bonds.
Week 6	Know that RNA is a second type of nucleic acid that has the following features: single-stranded, contains ribose, contains uracil; and RNA is used to take information from DNA in the nucleus to the ribosomes for the synthesis of proteins.
Week 7	**Mid-Term Examination**
Week 8	Understand that a gene is a length of DNA containing a sequence of bases coding for a specific protein
Week 9	Describe the functions of the nucleus, chromosomes, and ribosomes.
Week 10	Describe the structure of cells specialized for reproduction (ovum) and (sperm) and relate their structure to their function.
Week 11	Cell division and the cell cycle. Understand that mitosis occurs during growth.
Week 12	Know the four main stages of mitosis – prophase, metaphase, anaphase, and telophase – which result in the production of two genetically identical diploid daughter cells.
Week 13	Know the main stages of Meiosis I (Reduction Division).
Week 14	Know the main stages of Meiosis II (Equational Division) – which result in the production of four haploid daughter cells.
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Weeks	Material Covered
Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
Weeks	**Material Covered**
Week 1	**Lab 1**: The students will understand the structure, types, and function of the microscope, and how the student uses the microscope and prepares laboratory slides. Introduction of practical cytology.
Week 2	**Lab 2**: The students will understand what cell structure are, cell types, and size, and comparison among prokaryotic and eukaryotic cells.
Week 3	**Lab 3**: The students will understand the cell components and organelles including the cell wall, cell membrane, cytoplasm, and nucleus, and will see some cell types under the microscope in the laboratory.
Week 4	**Lab 4**: The students will understand the cell components including Ribosomes, endoplasmic reticulum, Golgi apparatus, lysosome, peroxisome, and vacuoles.
Week 5	**Lab 5**: Comparison among plant cells and animal cells and the students will take 2 experiments including Experiment 1 (Prepare a wet mount of onion epidermal skin) and Experiment 2 (Prepare a wet mount of cheek cells).
Week 6	**Lab 6**: The students will understand the cell cycle, the mitosis type of the cell cycle, what are the main stages of mitosis including prophase, metaphase, anaphase, and telophase, and will see some stages of cell division in the laboratory under the microscope.
Week 7	**Lab 7**: The students will understand the cell division and cycle, the meiosis type of the cell cycle and what are the main stages of meiosis including meiosis 1 and meiosis 2. Gametogenesis and comparison among somatic cells (diploid) and germ cells (haploid) including egg and sperm.

	Text	**Available in the Library?**
Learning and Teaching Resources		
مصادر التعلم والتدريس		
Required Texts	International-GCSE-Human-Biology-Student-Book	No
Recommended Texts	"Biology" by Neil A. Campbell and Jane B. Reece	No
Websites	https://ia601502.us.archive.org/24/items/cnx-org-col11903/clark-college-human-biology.pdf	

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

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	ANALYTICAL CHEMISTRY		**Module Delivery**	
Module Type	SUPPLEMENT		☒Theory	
Module Code	CREQ1105		☒Lecture	
ECTS Credits	5		☒Lab	
SWL (hr/sem)	125		☒Tutorial ☐Practical ☒Seminar	
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. Ibrahim Abdul Kareem MSc. Rana Abd Hamza MSc. Ahlam Abdulla MSc. Ahmed Abd Temur MSc. Alaa Waleed Qader	**e-mail**	ibrahim.bdulkareem@nahrainuniv.edu.iq Ahlam.Abdullah@nahrainuniv.edu.iq ahmed.abed@nahrainuniv.edu.iq alaa.waleed@nahrainuniv.edu.iq	
Peer Reviewer Name	Khawla A. Kasar	**e-mail**	khawla.kasar@nahrainuniv.edu.iq	
Review Committee Approval		**Version Number**		1
Laboratory Staff	MSc. Ahmed Abd Temur, MSc. Ibrahim Abdul Kareem, MSc. Zina Jabbar Ghaib Hassan, MSc. Alaa Waleed Qader, MSc. Ahlam Abdulla Alwan, MSc. Anwar Hameed Darwesh, MSc. Noor Jumaa Swari			

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 15-week course is designed to provide students with a 1. comprehensive understanding of the fundamental concepts of General Chemistry and their application in Analytical Chemistry 2. Understanding the mole concept, various expressions of concentrations 3. Acid-Base Equilibria expression and its calculations 4. Buffer solution concepts and designing 5. develop students' ability to analyze, interpret, and solve problems related to these areas of chemistry
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. use the various concentration expressions and manipulate each one to SI unite system 2. Naming chemical compounds, understanding the nature of it physically and chemically 3. Describe the preparation of any type of solution i.e. acids, bases, salts from concentrated solutions or solid 4. Designing preparation of various types of buffer solutions
Indicative Contents المحتويات الإرشادية	Part A- General Chemistry Nature of Matter- Element, Compound, Mixture Periodic table, Chemical Bonding, molecular view of reactions in aqueous solutions, Naming chemical compounds Part B- Analytical Chemistry Mole concept, stoichiometry, the balance of chemical equations, acid-base equilibria concept, buffer solution concept, and design.

<table>
<tr><td colspan="2" align="center">Learning and Teaching Strategies
استراتيجيات التعلم والتعليم</td></tr>
<tr>
<td>Strategies</td>
<td>
1- Dividing students into several groups and encourage them to work as a 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
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<tr><td colspan="4" align="center">Student Workload (SWL)
الحمل الدراسي للطالب</td></tr>
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<td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td>
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<td>Structured SWL (h/w)
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<tr><td colspan="6" align="center">Module Evaluation
تقييم المادة الدراسية</td></tr>
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<td>Time/Number</td>
<td>Weight (Marks)</td>
<td>Week Due</td>
<td>Relevant Learning Outcome</td>
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<tr>
<td rowspan="4">Formative assessment</td>
<td>Quizzes</td>
<td>2</td>
<td>10% (10)</td>
<td>5, 10</td>
<td>LO #1, 2, 10 and 11</td>
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<tr>
<td>Assignments</td>
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<td>10% (10)</td>
<td>2, 12</td>
<td>LO # 3, 4, 6 and 7</td>
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<tr>
<td>Projects / Lab.</td>
<td>1</td>
<td>10% (10)</td>
<td>Continuous</td>
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<tr>
<td>Report</td>
<td>1</td>
<td>10% (10)</td>
<td>13</td>
<td>LO # 5, 8 and 10</td>
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<tr>
<td rowspan="2">Summative assessment</td>
<td>Midterm Exam</td>
<td>2 hr</td>
<td>10% (10)</td>
<td>7</td>
<td>LO # 1-7</td>
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<tr>
<td>Final Exam</td>
<td>2hr</td>
<td>50% (50)</td>
<td>16</td>
<td>All</td>
</tr>
<tr>
<td colspan="2">Total assessment</td>
<td></td>
<td>100% (100 Marks)</td>
<td></td>
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	Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري
	Material Covered
Week 1	Introduction to Chemistry and Scientific Measurements
Week 2	The Metric System
Week 3	Matter and Energy
Week 4	Models of the Atom
Week 5	The Periodic Table
Week 6	Language of Chemistry
Week 7	Chemical Reactions
Week 8	Chemical Bonding
Week 9	The Mole Concept and Stoichiometry
Week 10	Concentrations expressions
Week 11	Acids and Bases
Week 12	Chemical Equilibrium Oxidation and Reduction
Week 13	Buffer solution
Week 14	Buffer solution designing
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)
المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: safety and equipment and apparatus in analytical chemistry
Week 2	Lab 2: Making measurements
Week 3	Lab 3: Scientific method: Identify an Unknown Chemical Mixture
Week 4	Lab 4: Determination of Avogadro's Number
Week 5	Lab 5: Qualitative Analysis of Cations
Week 6	Lab 6: standardization of 0.1 N NaOH
Week 7	Lab 7: Determination of acetic acid in Vinegar
Week 8	Lab: preparation of buffer solution

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Chemistry The Molecular Nature of Matter 6th ed by Neil D. Jespersen, James E. Brady	As pdf
Recommended Texts	Fundamentals of Analytical Chemistry 9th Edition by Douglas A. Skoog (Author), Donald M. West (Author), F. James Holler (Author)	As pdf
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
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	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

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	MEDICAL LABORATORY TECHNIQUE	**Module Delivery**	
Module Type	CORE	☒Theory	
Module Code	APPA111	☒Lecture	
ECTS Credits	9	☒Lab	
		☒Tutorial	
SWL (hr/sem)	225	☐Practical	
		☒Seminar	
Module Level	UGx11 1	**Semester of Delivery**	1
Administering Department	Applied pathological analysis	**College**	Science
Module Leader	Asst. Pro. Sarah A. Mahdi	**e-mail**	Sara.abdalqder@nahrainuniv.edu.iq
Module Leader's Acad. Title	Assistant professor	**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr. Samar T. Hameed MSc. Huda Ghazi MSc. Omar Khalid Suhail	**e-mail**	samar.thamer@gmail.com huda.ghazi@nahrainuniv.edu.iq omar.khalid@nahrainuniv.edu.iq
Peer Reviewer Name	Asst. Pro. Sarah A. Mahdi	**e-mail**	Sara.abdalqder@nahrainuniv.edu.iq
Review Committee Approval		**Version Number**	1
Lab. staff	MSc. Amer Adnan, MSc. Dania Emad Ibrahim, MSc. Huda Ghazi Naser, MSc. Noor Dheyaa Jaafar, MSc. Athraa Falah, MSc. Omar		

	Khalid Suhail, MSC. Eman Adnan Abdulmajeed, MSc. Zainab Ali, MSc. Nada Mohammed, MSc. Ibrahim Abdul Kareem, MSc. Alaa Waleed Qader, MSc. Anwar Hameed Darwesh, MSc. Noor Jumaa Swari

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	1. Enable students to be able to understand the main functions of Lab. instruments 2. Enable students to identify the importance of these instruments to make students able to handle laboratory instruments 3. Enable students to be able to understand the basics of each technique. 4. Enable students to identify, in general, branches of the clinical tests.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Knowledge and understanding of the fundamental tools in each lab. 2. Determining the importance of lab instruments. 3. Explanation of handling and maintaining the instruments. 4. Training on analysis of different types of instruments. 5. Studying the mechanisms of instruments.		
Indicative Contents المحتويات الإرشادية	Laboratory safety equipment Personal safety equipment First aid to be followed in the laboratory		
Learning and Teaching Strategies			
استراتيجيات التعلم والتعليم			
Strategies	Knowledge and Understanding 1- Determining the importance of lab instruments. 2- Explanation of handling and maintaining the instruments		

<table>
<tr><td colspan="5" align="center">**Student Workload (SWL)**
الحمل الدراسي للطالب</td></tr>
<tr>
<td>**Structured SWL (h/sem)**
الحمل الدراسي المنتظم للطالب خلال الفصل</td>
<td>94</td>
<td>**Structured SWL (h/w)**
الحمل الدراسي المنتظم للطالب أسبوعيا</td>
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<td>**Unstructured SWL (h/sem)**
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td>
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<td>**Unstructured SWL (h/w)**
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td>
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<td>**Total SWL (h/sem)**
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<td colspan="3">225</td>
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		Module Evaluation تقييم المادة الدراسية			
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Formative assessment	**Quizzes**	2	10% (10)	5, 10	LO #1, 2, 10 and 11
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Total assessment			100% (100 Marks)		

	Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered	
Week 1	Types of laboratory samples	
Week 2	Components of laboratory samples	
Week 3	Methods of separating laboratory samples	
Week 4	Types of laboratory instrumental	
Week 5	Methods of separating laboratory samples	
Week 6	Types of laboratory instrumental	

Week 7	Types of laboratory instrumental
Week 8	Standardization methods instrumental and the equipment in the lab
Week 9	Standardization methods for tests
Week 10	Electrophoresis principle and application
Week 11	Mid exam
Week 12	Biochemical tests
Week 13	Microbiology tests
Week 14	Genetic tests
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Safety and tools
Week 2	Lab 2: Types of sample & Types of Tube
Week 3	Lab 3: Centrifuge & PCV
Week 4	Lab 4: Water path
Week 5	Lab 5: Spectrophotometer
Week 6	Lab 6: Microscope
Week 7	Lab 7: Hematology

<table>
<tr><td colspan="3">Learning and Teaching Resources
مصادر التعلم والتدريس</td></tr>
<tr><td></td><td>Text</td><td>Available in the Library?</td></tr>
<tr><td>Required Texts</td><td>Lisa Moran and Tina Masciangioli....'Chemical Laboratory Safety and Security</td><td></td></tr>
<tr><td>Recommended Texts</td><td>Nicholas P. Cheremisinoff "Handbook of Hazardous Chemical Properties"</td><td></td></tr>
<tr><td>Websites</td><td>http://www.acs.org/content/acs/en.html</td><td></td></tr>
</table>

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

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	DEMOCRACY & HUMAN RIGHTS	**Module Delivery**	
Module Type	BASIC	☒Theory ☒Lecture ☐Lab ☐Tutorial ☐Practical ☒Seminar	
Module Code	URDEM		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGx11 1	**Semester of Delivery**	1
Administering Department	Applied Pathological analysis	**College**	College of Science
Module Leader	Noor Muneer Basheer	**e-mail**	Noor.M.B@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer Assist.	**Module Leader's Qualification**	M.sc
Module Tutor	None	**e-mail**	None
Peer Reviewer Name	None	**e-mail**	None
Review Committee Approval		**Version Number**	1.0

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 | The goal of studying human rights and democracy is to enhance understanding and awareness of human rights issues and the fundamental principles of democracy. There are several key objectives in studying this subject:

1. Understanding human rights: The study of human rights aims to familiarize you with the core concepts of human rights and their fundamental value in society. You will learn about the history and legal development of human rights, as well as the international treaties and agreements related to this subject.

2. Awareness of the core principles of democracy: You will become acquainted with the concept of democracy and its core values, including the rule of law, citizenship rights, and political participation. You will also learn about different systems of governance and how democratic principles are applied in different societies.

3. Familiarity with current challenges: You will learn about current challenges and issues in the field of human rights and democracy. You will study issues related to discrimination, social justice, women's rights, minority rights, children's rights, and refugee rights, as well as how to address these challenges within a democratic framework.

4. Application of concepts to real-world situations: You will learn how to apply the concepts and principles studied in human rights and democracy to practical situations. You will study the various roles of human rights organizations and democratic institutions, and how to work towards promoting human rights and enhancing democracy in societies.

5. Development of critical and analytical skills: You will learn how to analyze issues related to human rights and democracy and evaluate the legal, ethical, and political contexts surrounding them. You will practice formulating strong arguments and providing constructive criticism of unjust policies and practices.

By studying human rights and democracy, you will acquire the necessary knowledge and understanding to contribute to the promotion of human rights and democracy in society and work towards creating positive change. |
| **Module Learning Outcomes** | The University of Al-Nahrain works through teaching the subject of human rights and democracy to promote education, and awareness, and train students on the importance of active participation in various aspects of public life. This |

مخرجات التعلم للمادة الدراسية	includes promoting respect for the principles of human rights, active engagement in political and cultural life, and fostering values, beliefs, and positions that encourage all students to support their rights and the rights of others. It also facilitates an understanding of the shared responsibility of this group in making human rights a lived reality, equipping them with knowledge, skills, and attitudes that enable them to comprehend these rights and adhere to them
Indicative Contents المحتويات الإرشادية	-Understanding the concept of rights and the concept of human beings, both linguistically and terminologically, and understanding the concept of human rights and studying the legal personality of humans, as well as the characteristics of natural persons. - Understanding the historical development of the idea of human rights in ancient and medieval eras, and the concept of human rights in divine scriptures. - Studying the sources of local and international human rights. - Studying the guarantees of human rights and understanding constitutional and judicial guarantees, as well as guarantees of human rights in Islam. - Understanding the role of organizations in human rights at the regional and international levels. - Studying the impact of globalization on human rights. - Studying the concept of democracy, its evolution, definition, and dimensions. - Studying representative democracy and understanding the representative system and its legal nature. - Understanding the concept of elections and its legal adaptation. - Understanding the organization of elections, including the delineation of electoral districts, electoral lists, candidates, election campaigns, and voting. - Studying electoral systems and understanding direct elections, indirect elections, individual elections, and list-based elections. -Understanding the advantages and disadvantages of democracy
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. PowerPoint 2. Writing reports 3. Online learning 4 . Field visits

Student Workload (SWL)

<div dir="rtl">الحمل الدراسي للطالب</div>

Structured SWL (h/sem) <div dir="rtl">الحمل الدراسي المنتظم للطالب خلال الفصل</div>	33	**Structured SWL (h/w)** <div dir="rtl">الحمل الدراسي المنتظم للطالب أسبوعيا</div>	2.2
Unstructured SWL (h/sem) <div dir="rtl">الحمل الدراسي غير المنتظم للطالب خلال الفصل</div>	17	**Unstructured SWL (h/w)** <div dir="rtl">الحمل الدراسي غير المنتظم للطالب أسبوعيا</div>	1.1
Total SWL (h/sem) <div dir="rtl">الحمل الدراسي الكلي للطالب خلال الفصل</div>	50		

Module Evaluation

<div dir="rtl">تقييم المادة الدراسية</div>

		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
	Seminar	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)

<div dir="rtl">المنهاج الاسبوعي النظري</div>

	Material Covered
Week 1	The concept of human rights
Week 2	Human rights in ancient civilizations
Week 3	Human rights in divine laws and religions
Week 4	Human rights resources
Week 5	Human rights guarantee and means of protecting them
Week 6	The role of organizations in protecting human rights
Week 7	Globalization and human rights

Week 8	The concept of democracy
Week 9	Representative democracy.
Week 10	The concept of election and its legal adaptation
Week 11	Organizing the election process
Week 12	Election systems
Week 13	Formation of the electorate
Week 14	Obstacles and Foundations of Good Governance
Week 15	Disadvantages and advantages of democracy
Week 16	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Maher Saleh Allawi Al-Jubouri, Human Rights, Children and Democracy, The Law Library, 2009	yes
Recommended Texts	Hamid Hanoun Khaled, Human Rights, Al- Dr. Sanhouri Library, 2015	no
Websites		

APPENDIX:

<table>
<tr><td colspan="5" align="center">**GRADING SCHEME**
مخطط الدرجات</td></tr>
<tr><td>**Group**</td><td>**Grade**</td><td>التقدير</td><td>**Marks (%)**</td><td>**Definition**</td></tr>
<tr><td rowspan="5">**Success Group**
(50 - 100)</td><td>**A -** Excellent</td><td>امتياز</td><td>90 - 100</td><td>Outstanding Performance</td></tr>
<tr><td>**B -** Very Good</td><td>جيد جدا</td><td>80 - 89</td><td>Above average with some errors</td></tr>
<tr><td>**C -** Good</td><td>جيد</td><td>70 - 79</td><td>Sound work with notable errors</td></tr>
<tr><td>**D -** Satisfactory</td><td>متوسط</td><td>60 - 69</td><td>Fair but with major shortcomings</td></tr>
<tr><td>**E -** Sufficient</td><td>مقبول</td><td>50 - 59</td><td>Work meets minimum criteria</td></tr>
<tr><td rowspan="2">**Fail Group**
(0 – 49)</td><td>**FX –** Fail</td><td>مقبول بقرار</td><td>(45-49)</td><td>More work required but credit awarded</td></tr>
<tr><td>**F –** Fail</td><td>راسب</td><td>(0-44)</td><td>Considerable amount of work required</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Note:</td><td></td><td></td><td></td></tr>
<tr><td colspan="5">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.</td></tr>
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<table>
<tr><td rowspan="5"></td><td colspan="4" align="center">Ministry of Higher Education and
Scientific Research - Iraq
Al-Nahrain University
College of Science
Applied Pathological Analysis Department</td><td rowspan="5"></td></tr>
</table>

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			

Module Title	COMPUTER	**Module Delivery**	
Module Type	BASIC	☐Theory ☒Lecture ☒Lab ☐Tutorial ☐Practical ☐Seminar	
Module Code	URCOM		
ECTS Credits	3		
SWL (hr/sem)	75		

Module Level	UGx11 1	**Semester of Delivery**	first
Administering Department	Applied Pathological Analysis	**College**	College of science
Module Leader	Dr. Dalal Naeem Hamood	**e-mail**	Dalal.naeem@ced.univnahrain.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor	None	**e-mail**	None
Peer Reviewer Name	Dr. Dalal Naeem Hamood	**e-mail**	Dalal.naeem@ced.univnahrain.edu.iq
Review Committee Approval		**Version Number**	
Lab. Staff	MSc. Saif Mohammed, MSc. Mohammed Majeed, MSc. Rasha Shaheer.		

<table>
<tr><td colspan="4" align="center">Relation With Other Modules

العلاقة مع المواد الدراسية الأخرى</td></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><td colspan="4" align="center">Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</td></tr>
<tr><td>Module Aims
أهداف المادة الدراسية</td><td colspan="3">1. The main aim of the course is to introduce the students to the principles of Computer.
2. It focuses on explaining the abbreviations of the computer
3. this semester, focuses on the common skills for computer applications Such as Word.</td></tr>
<tr><td>Module Learning Outcomes

مخرجات التعلم للمادة الدراسية</td><td colspan="3">1. To teach students how the use the computer.
2. To teach students how to use the application such as word
3. To teach students the work with windows
4. To teach students the working with word</td></tr>
<tr><td>Indicative Contents
المحتويات الإرشادية</td><td colspan="3"></td></tr>
<tr><td colspan="4" align="center">Learning and Teaching Strategies

استراتيجيات التعلم والتعليم</td></tr>
<tr><td>Strategies</td><td colspan="3">Book, Lectures, lab & homework.</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Student Workload (SWL)

الحمل الدراسي للطالب</td></tr>
<tr><td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>63</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>7</td></tr>
<tr><td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>12</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>6.5</td></tr>
<tr><td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td>75</td><td></td><td></td></tr>
</table>

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	
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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	• WHAT IS A COMPUTER? • Major Functions of Computer System) • CHARACTERISTICS OF COMPUTERS
Week 2	-The Computer System -The Generations of Computer -Classification Of Computer
Week 3	• Components Of Computer Hardware • Application Of Computers • Central Processing Unit Arithmetic Logic Unit
Week 4	• Memory Unit • Input And Output Devices • I/O Ports
Week 5	• Types Of Software • System software • Application software

Week 6	Exam 1
Week 7	• Bus technology Computer virus
Week 8	• Network technology • Importance Of Networking
Week 9	• Network Devices • Wireless Networking
Week 10	• History Of Internet • The Internet Architecture • World Wide Web (WWW)
Week 11	• Data, Information And Knowledge • Characteristics Of InformATION
Week 12	• GIS • GPS
Week 13	• Wifi • Bluetooth
Week 14	EXAM 2
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: windows skills:(create folder, create file, screen saver)
Week 2	Lab 2: windows skills:(compression, drives, storing files)
Week 3	Lab 3: windows skills:(start menu, task bar)
Week 4	Lab 4: windows skills:(control panel)
Week 5	Lab 5: word processor"(create new file, open ,edit, save, save as)
Week 6	Lab 6: word processor: (draw shapes, draw different flowchart)
Week 7	Lab 7:word Processor: (tables)

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	**Introduction to computers** **Prter Norton** **Mc Grow Hill** **2017**	No
Recommended Texts		
Websites		

APPENDIX:

GRADING SCHEME مخطط الدرجات				
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	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	NEW HEADWAY PLUS	**Module Delivery**
Module Type	BASIC	☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☒**Seminar**
Module Code	URENG1	
ECTS Credits	2	
SWL (hr/sem)	50	

Module Level	UGx11 1		**Semester of Delivery**		1
Administering Department		Applied pathological analysis	**College**	Science	
Module Leader	Dr. Khawla A. Kasar Assist. Lect. Israa Namh Abdula		**e-mail**	khawla.kasar@nahrainuniv.edu.iqisraa. alsultani@nahrainuniv.edu.iq	
Module Leader's Acad. Title		Assistant professor	**Module Leader's Qualification**		PhD
Module Tutor	Non		**e-mail**	Non	
Peer Reviewer Name		Non	**e-mail**	Non	
Review Committee Approval			**Version Number**	1	

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	1. Explain the principle of the English language and how to use it 2. Explain how to use English grammar in a correct way in talking and writing 3. Explain how to write in an academic way to use it to prepare to write the research at the end of year four
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will be able to communicate effectively in English in a variety of academic and professional settings, using appropriate vocabulary, grammar, and discourse strategies. 2. Students will be able to read and comprehend texts of different genres and levels of complexity in English and apply critical thinking and analytical skills to interpret and evaluate the texts. 3. Students will be able to write clear and coherent texts in English for different purposes and audiences, using appropriate conventions of style, format, and citation. 4. Students will be able to listen and understand spoken English in different contexts and situations and respond appropriately to the speakers' intentions and expectations. Students will be able to demonstrate awareness and appreciation of the cultural and linguistic diversity of the English-speaking world and reflect on their own cultural and linguistic identities and experiences.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. A1. Knowing the principle of the English language A2. Use English in the correct way in talking and in writing in an academic way A3. English language skills such as speaking, listening, reading and writing A4. Communicative English and professional communication

	A5. Cultural education and diversity. These topics are designed to help students develop their critical thinking, analytical, creative, and communicative abilities in English. They also expose students to a wide range of literary and cultural texts and contexts.
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 type 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	33	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	17	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

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	Chapter one
Week 2	Academic writing
Week 3	Tutorial
Week 4	Introduction to Presentations
Week 5	Chapter two
Week 6	Essential tips for academic presentations
Week 7	Chapter three
Week 8	Presentation assessments
Week 9	Mid exam 1

Week 10	Academic writing
Week 11	Reading
Week 12	Grammar
Week 13	Mid exam 2
Week 14	Chapter one
Week 15	Academic writing
Week 16	Tutorial

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	1. Books Required reading:	New Headway Plus/Upper-Intermediate/ Student's Book
Recommended Texts		New headway plus / Upper Intermediate/ Workbook
Websites	https://www.scribbr.com/category/academic-essay/	

APPENDIX:

GRADING SCHEME
مخطط الدرجات

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MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية				
Module Title	Human Biology		**Module Delivery**	
Module Type	Core		☒**Theory** ☒**Lecture** ☒**Lab** ☒**Tutorial** ☐**Practical** ☒**Seminar**	
Module Code	APPA124			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	**Semester of Delivery**		2
Administering Department	Applied Pathological Analysis	**College**	College of Science	
Module Leader	Dr. Zainab Sabeeh Dr. Mustafa A. Hadid	**e-mail**	Zainab.sabeeh@nahrainuniv.edu.iq hadid.m.a@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Assistant Professor	**Module Leader's Qualification**		Ph. D.
Module Tutor	MSc. Ahmed Jabbar	**e-mail**	ahmedjabbar939393@gmail.com	
Peer Reviewer Name	Dr. Mustafa A. Hadid	**e-mail**	hadid.m.a@nahrainuniv.edu.iq	
Review Committee Approval	24/02/2024	**Version Number**	1	
Laboratory Staff	Dr. Wael Adil Obaid, Dr. Evan H. Sulaiman, MSc. Hadeer Faris, MSC. Estabraq Sami, MSc. Mays Abdulhadi, MSC. Zeena Murshed, MSc. Eman Adnan Abdulmajeed, Dr. Nawfal Haitham Shakir, MSc. Ahmed Jabbar, MSc. Saddam Yahya Diwan, MSc. Noor Dheyaa Jaafar, MSc. Anwar Hameed Darwesh, MSc. Noor Jumaa Swari.			

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	The course is designed to teach the students: 1. A comprehensive understanding of the human body's structure, function, process, and behavior. 2. Knowledge of human biology improves our understanding of the human body, and how it works at the cellular, tissue, organ, and system levels to illustrate our place as human beings in the natural world.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Knowing the body molecules and the body systems is of paramount importance for several reasons: 1. Understanding the body's systems work helps identify issues and select appropriate treatments. 2. Understanding the body's systems enables individuals to make informed decisions about their health. This knowledge can promote preventive measures, such as adopting a healthy lifestyle, regular check-ups, and identifying disease risk factors. 3. Teaching about body systems is fundamental in medical and biology education. It provides the foundation for healthcare professionals. 4. Individuals can better manage their health and well-being when they understand their bodies; this includes making dietary and lifestyle choices that promote good health.
Indicative Contents المحتويات الإرشادية	Chemistry of life. Carbohydrates (starch and glycogen) from simple sugars Lipids from fatty acids and glycerol

	Protein from amino acids
	Nucleic acids from nucleotides
	Transport and movement of substances: diffusion, osmosis, and active transport. Factors that affect the rate of transport
	Major organ systems
	Blood vessels and circulation
	Lymphatic system and Immune system components
	Mid-Term Examination
	Digestive System and Nutrition
	Respiratory tract structure and function
	Kidney structure and function
	Bones and their roles and joints
	Muscle types
	Neurons and nerve impulses
	Endocrine Glands
	Male and female reproductive anatomy

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. Use 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	97	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	78	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	5
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	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 human biology. Chemistry of life, Molecule of life (Micro molecules and macromolecules) in the human cell. Understand the structure of carbohydrates, proteins, lipids, and nucleic acids as large molecules made up of smaller basic units: - Carbohydrates (starch and glycogen) from simple sugars - Lipids from fatty acids and glycerol - Protein from amino acids - Nucleic acids from nucleotides
Week 2-3	**Week 2:** Understanding of the nature of biological membranes. Review and explain the types of cellular transport. Understand the factors that affect the rate of movement of substances into and out of cells, including surface area to volume ratio, temperature, and concentration gradient. **Week 3:** Know the definitions of diffusion, osmosis, and active transport. Understand that the movement of substances into and out of cells can be by diffusion, osmosis (understanding of water potential is required), active transport.
Week 4-7	**Week 4:** Body Systems. Cardiovascular System: Heart and Blood Vessels, and Blood Overview of the Cardiovascular System The Types of Blood Vessels The Heart Is a Double Pump Features of the Cardiovascular System Two Cardiovascular Pathways Exchange at the Capillaries Blood: An Overview Red Blood Cells and Transport of Oxygen White Blood Cells and defense Against Disease Platelets and Blood Clotting Blood Typing **Week 5:** Lymphatic System and Immunity Microbes, Pathogens, and human The Lymphatic System Types of Immunity Hypersensitivity Reactions **Week 6:** Digestive System Overview of Digestion First Part of the Digestive Tract The Stomach and Small Intestine Three Accessory Organs and Regulation of Secretions The Large Intestine

	Week 7: Mid-Term Examination
Week 8-11	**Week 8:** Respiratory System The Respiratory System The Upper Respiratory The Lower Respiratory Mechanism of Breathing Control of Ventilation Gas Exchanges in the Body **Week 9:** Urinary System and Excretion Urinary System Kidney Structure Urine Formation Regulatory Functions of the Kidneys **Week 10:** Reproductive System Human Life Cycle Male Reproductive System Female Reproductive System **Week 11:** Skeletal System Movement and Support in Humans, Overview of the Skeletal System Bone Growth; Bones of the Axial Skeleton, and Bones of the Appendicular Skeleton Articulations
Week 12-14	**Week 12:** Muscular System Overview of Muscular System Skeletal Muscle Fiber Contraction Whole Muscle Contraction **Week 13:** Nervous System Overview of the Nervous System The Central Nervous System The Limbic System and Higher Mental Functions The Peripheral Nervous System **Week 14:** Endocrine System Endocrine Glands Hypothalamus and Pituitary Gland Thyroid and Parathyroid Glands Adrenal Glands Pancreas Other Endocrine Glands
Delivery Plan (Weekly Lab. Syllabus)

Weeks	Material Covered
المنهاج الاسبوعي للمختبر	
Week 1	**Lab1.** Classification of living organisms. -Definition of taxonomy and what are the levels of classification of organisms. -Life kingdoms including Kingdom Animalia, Kingdom Fungi, Kingdom Plantae Kingdom Eubacteria, kingdom Protista, and Archaebacterial.
Week 2	**Lab2.** Transport of cellular materials part 1. - Types of transport across membranes. - Passive transport across membrane including simple and facilitated diffusion. Experiment: passive transport (simple diffusion) in solid and liquid medium
Week 3	**Lab3**. Transport of cellular materials part 2. - Passive transport across membrane including osmosis. Experiment 1: Red blood cells in hypertonic solution 0.9% NaCl. Experiment2: Dialysis tubing experiment
Week 4	**Lab 4.** Blood group system and Rhesus factor (Rh). - Rh blood group system for classifying blood groups according to the presence or absence of the Rh antigen (Rh factor) on the cell membranes of red blood cells. - Blood group detection test using ABO and Rh blood grouping kit.
Week 5	**Lab 5.** Mid-term exam
Week 6	**Lab 6.** Human body tissues. - Body tissue types and features including Epithelial tissues, Connective tissues, nerve tissues, and muscular tissues - Epithelial tissue types and their sites in human body organs.
Week 7	**Lab7.** Human body tissues. -An introduction to the skin and its function. -Skin layers features: -Epidermal appendages including nails, hair, sweat glands and sebaceous glands.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts		No
Recommended Texts	International-GCSE-Human-Biology-Student-Book 📄 PDF International-GCSE-H uman-Biology-Studer Human Biology (10 Ed) Sylvia S. Mader	No Yes
Websites	https://ia601502.us.archive.org/24/items/cnx-org-col11903/clark-college-human-biology	

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

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information				
معلومات المادة الدراسية				

Module Title	Occupational Safety	Module Delivery		
Module Type	Core	☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar		
Module Code	CREQ1207			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level	1	Semester of Delivery		2
Administering Department	Applied pathological analysis	College	College of Science	
Module Leader	Assistant Prof. Sarah A. Mahdi	e-mail	Sara.abdalqder@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Assistant professor	Module Leader's Qualification		M.Sc..
Module Tutor	MSc. Ibrahim Abdul Kareem	e-mail	ibrahim.bdulkareem@nahrainuniv.edu.iq	
Peer Reviewer Name	Sarah A. Mahdi	e-mail	Sara.abdalqder@nahrainuniv.edu.iq	
Scientific Committee Approval Date	24/02/2024	Version Number	1.0	

<table>
<tr><td colspan="4" align="center">**Relation with other Modules**

العلاقة مع المواد الدراسية الأخرى</td></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>
</table>

<table>
<tr><td colspan="2" align="center">**Module Aims, Learning Outcomes and Indicative Contents**

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</td></tr>
<tr><td>**Module Aims**
أهداف المادة الدراسية</td><td>Introduce students to all basic concepts related to occupational safety in laboratories and factories</td></tr>
<tr><td>**Module Learning Outcomes**

مخرجات التعلم للمادة الدراسية</td><td>1 - Introducing students to all the basic concepts related to occupational safety
2. Increase awareness and education of students in all matters of occupational safety
3 - Occupational safety in industrial units.
4-Teach the student to take all safety measures in laboratories
5 - Develop the student's skills to conduct on-site assessment of laboratories and factories
6 - Teaching the student how to identify the risks of working in factories and how to overcome them</td></tr>
<tr><td>**Indicative Contents**
المحتويات الإرشادية</td><td>Introduction
Safety…...
Meanings</td></tr>
<tr><td></td><td>Safety...Glossary of Terms</td></tr>
<tr><td></td><td>Safety...Glossary of Terms, Toxicological Chemistry</td></tr>
<tr><td></td><td>Toxicological chemistry,
Fire or burning</td></tr>
<tr><td></td><td>Fire or Burning</td></tr>
<tr><td></td><td>Hazard and Risk</td></tr>
<tr><td></td><td>Hazard and Risk,
Chemical Information data</td></tr>
<tr><td></td><td>Mid. course exam/1</td></tr>
<tr><td></td><td>Chemical Information data,
Laboratory Safety</td></tr>
<tr><td></td><td>Laboratory Safety</td></tr>
<tr><td></td><td>Managing Chemicals</td></tr>
</table>

	Working with Laboratory Equipment, Working with Chemicals
	Managing Chemical Waste
	Safety & Health in Chemical Industries
	Safety & Health in Chemical Industries

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	To develop the student's knowledge of safety matters 1- It is possible for the student to teach others about safety matters 2 - ways to reduce accidents 3- Study the causes of accidents

Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	65	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	35	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	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
	Projects	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 1-2	Introduction Safety….. Meanings Safety...Glossary of Terms,Toxicological chemistry
Week 3-5	Toxicological chemistry, Fire or Burning Hazard and Risk
Week 6-8	Hazard and Risk, Chemical Information data Mid. course exam/1 Chemical Information data, Laboratory Safety
Week 9-12	Laboratory Safety Managing Chemicals Working with Laboratory Equipment, Working with Chemicals
Week 13-15	Managing Chemical Waste Safety & Health in Chemical Industries
Week 16	**Preparatory week before the final Exam**

<table>
<tr><th colspan="3">**Learning and Teaching Resources**
مصادر التعلم والتدريس</th></tr>
</table>

	Text	Available in the Library?
Required Texts	Lisa Moran and Tina Masciangioli....'Chemical Laboratory Safety and Security	No
Recommended Texts	Nicholas P. Cheremisinoff "Handbook of Hazardous Chemical Properties"	No
Websites	• http://www.acs.org/content/acs/en.html	

Appendix

for title				
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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

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MODULE DESCRIPTOR FORM

نموذج وصف المـادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Medical Terminology	**Module Delivery**	
Module Type	Core	☒Theory	
Module Code	APPA126	☒Lecture ☒Lab	
ECTS Credits	2	☒Tutorial	
SWL (hr/sem)	50	☐Practical ☒Seminar	
Module Level	1	**Semester of Delivery**	2
Administering Department	Applied pathological analysis	**College**	College of Science
Module Leader	Dr. Khawla A. Kasar Assist. Lect. Israa Namh Abdula	**e-mail**	khawla.kasar@nahrainuniv.edu.iqisraa.alsultani@nahrainuniv.edu.iq
Module Leader's Acad. Title	Assistant professor	**Module Leader's Qualification**	PhD
Module Tutor	Non	**e-mail**	Non
Peer Reviewer Name	Non	**e-mail**	Non
Review Committee Approval	24/02/2024	**Version Number**	1

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	1. Definition of general terms related to pathological analyses 2. The ability to distinguish the use of medical terminology 3. Link the term to its function 4. Know the use of terms and the difference between them
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Helping the student in learning scientific language 2. Improving the student's use of medical terminology and being able to use it in the correct way 3. Improving student writing in academic language
Indicative Contents المحتويات الإرشادية	Giving the student comprehensive and detailed information about the terms used to describe the physiological systems of the human body. Giving the student a sense of familiarity with the terminology accompanying their course of study and future work. Introduces the student to the meanings of the terms mentioned in the lectures. Enabling the student to understand most of the discussions in English on any topic mentioned in the lectures. Enabling the student to use proper English in talking about the topics mentioned in the lectures. Enable the student to write short paragraphs in English on the topics mentioned in the lectures.

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	1. Encourage students to take organized notes during lectures. 2. Provide practice questions and share exercise solutions 3. Actively participate in group discussions and collaborative activities. 4. Utilize books, online resources, and supplemental materials to enhance learning. 5. Provide

<table>
<tr><th colspan="4">Student Workload (SWL)</th></tr>
<tr><th colspan="4">الحمل الدراسي للطالب</th></tr>
<tr><td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>37</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>4</td></tr>
<tr><td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>13</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>1</td></tr>
<tr><td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td>50</td><td></td><td></td></tr>
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<table>
<tr><th colspan="6">Module Evaluation</th></tr>
<tr><th colspan="6">تقييم المـادة الدراسية</th></tr>
<tr><td></td><td></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>2</td><td>10% (10)</td><td>5, 10</td><td>LO #1, 2, 10 and 11</td></tr>
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<tr><td>Projects</td><td>1</td><td>10% (10)</td><td>Continuous</td><td></td></tr>
<tr><td>Report</td><td>1</td><td>10% (10)</td><td>13</td><td>LO # 5, 8 and 10</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>2 hr</td><td>10% (10)</td><td>7</td><td>LO # 1-7</td></tr>
<tr><td>Final Exam</td><td>2hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">Total assessment</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="2">Delivery Plan (Weekly Syllabus)</th></tr>
<tr><th colspan="2">المنهاج الاسبوعي النظري</th></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>Week 1</td><td>Basic Elements of a Medical Word.</td></tr>
<tr><td>Week 2</td><td>Body structure and organization</td></tr>
<tr><td>Week 3</td><td>Name and elements of the body systems:</td></tr>
<tr><td>Week 4</td><td>Cells, tissues, organs, and systems.</td></tr>
</table>

Week 5	Definition parts of this system Function and disorders
Week 6	Spell, define, and pronounce new terms in this lecture.
Week 7	MID TERM EXAM
Week 8	CARDIOVASCULAR SYSTEM
Week 9	Skeletal system
Week 10	Muscular system
Week 11	Blood, Lymph, and Immune Systems Definition parts of this system
Week 12	Nervous system
Week 13	Genitourinary System
Week 14	Endocrine System
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	المورد الكبير dictionaries: 1, Medical terms dictionaries	
Recommended Texts	Online قاموس حتي الطبي-2	
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
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	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
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	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	Organic Chemistry		**Module Delivery**	
Module Type	Core		☒Theory ☒Lecture ☒Lab ☒Tutorial ☐Practical ☐Seminar	
Module Code	APPA125			
ECTS Credits	6			
SWL (hr/sem)	150			
Module Level		1	**Semester of Delivery**	2
Administering Department		Applied Pathological Analysis	**College**	College of Science
Module Leader	Dr. Wisam Kadhum H- Al-Hashemi Dr. Rasha Saad Jwad		**e-mail**	Wisam.kadhim@nahrainuniv.edu.iq rasha.saad@nahrainuniv.edu.iq
Module Leader's Acad. Title		Assistant Professor	**Module Leader's Qualification**	PhD
Module Tutor	MSc. Ahmed Abd Temur		**e-mail**	ahmed.abed@nahrainuniv.edu.iq
Peer Reviewer Name		Dr Rasha Saad Jwad	**e-mail**	rasha.saad@nahrainuniv.edu.iq
Review Committee Approval		24/02/2024	**Version Number**	1
Laboratory staff	MSc. Ahmed Abd Temur, MSc. Dania Emad Ibrahim, Ibrahim Abdul Kareem, MSc. Zina Jabbar Ghaib Hassan, MSc. Huda Ghazi, Dr. Samar T. Hameed, MSc. Amer Adnan, MSc. Omar Khalid Suhail, MSc. Ahlam Abdulla Alwan, MSc. Sarah A. Mahdi, MSc. Athraa Falah.			

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	None
Co-requisites module	None	**Semester**	None

Module Aims, Learning Outcomes and Indicative Contents

أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	1. Equip students with a foundational understanding of organic chemistry. 2. Cover essential topics such as chemical bonding, structure, nomenclature of organic compounds, reactivity of basic functional groups, and the chemistry of different functional groups. 3. Exploring molecules of biological significance. 4. Serve as a universal baseline of organic chemistry knowledge for incoming first-year students. 5. Construct the practical skills of organic chemistry for students.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. The student will be able to recognize and name different types of organic molecules based on their structure, functional groups, and systematic nomenclature rules. 2. Describe the bonding and shape of organic molecules: Understanding the types of bonds present in organic molecules (e.g., covalent bonds) and how these bonds influence the three-dimensional shape or geometry of the molecules. 3. Understanding the factors that influence the reactivity of organic molecules, such as the presence of functional groups, steric hindrance, and electronic effects. 4. Being able to describe the physical and chemical properties of different functional groups, as well as methods for preparing them and their typical reactions. 5. Being able to use the information about organic compound structure, bonding, reactivity, and functional groups to predict and explain the outcomes of organic reactions and to solve problems related to organic chemistry.

Indicative Contents المحتويات الإرشادية	Indicative content includes the following. 1.　　Structure and bonding in organic molecules: This covers the basics of molecular structure, including the shapes of organic molecules and the nature of chemical bonds within them. 2.　　Functional groups: Organic molecules are classified based on functional groups, which are specific arrangements of atoms within the molecule that confer characteristic chemical properties. 3.　　Nomenclature: Organic chemistry has a systematic way of naming compounds, which is essential for communication within the field. This includes the IUPAC (International Union of Pure and Applied Chemistry) naming system. 4.　　Isomerism: Organic molecules can exist as different isomers, compounds with the same molecular formula but different structural arrangements or spatial orientations, leading to distinct chemical properties. 5.　　Organic reactions: Understanding how organic reactions occur at the molecular level is fundamental to organic chemistry. 6.　　Stereochemistry: This branch of organic chemistry focuses on the spatial arrangement of atoms within molecules and how it influences the properties and reactivity of compounds. 7.　　Bioorganic chemistry: This interdisciplinary field explores the chemical processes occurring in living organisms, including the structures and functions of biological macromolecules like proteins, nucleic acids, and carbohydrates.
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	The primary approach for introducing this unit will involve fostering student engagement through active participation in homework exercises, aiming to enhance and broaden their critical thinking abilities. This will be facilitated through class sessions and interactive tutorials, supplemented by the exploration of simple experiments designed to incorporate sampling activities tailored to students' interests.

<table>
<tr><td colspan="4" align="center">**Student Workload (SWL)**

الحمل الدراسي للطالب</td></tr>
<tr><td>**Structured SWL (h/sem)**

الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>87</td><td>**Structured SWL (h/w)**

الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>7</td></tr>
<tr><td>**Unstructured SWL (h/sem)**

الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>63</td><td>**Unstructured SWL (h/w)**

الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>6.5</td></tr>
<tr><td>**Total SWL (h/sem)**

الحمل الدراسي الكلي للطالب خلال الفصل</td><td colspan="3">150</td></tr>
</table>

<table>
<tr><td colspan="6" align="center">**Module Evaluation**

تقييم المادة الدراسية</td></tr>
<tr><td></td><td></td><td>**Time/Number**</td><td>**Weight (Marks)**</td><td>**Week Due**</td><td>**Relevant Learning Outcome**</td></tr>
<tr><td rowspan="4">**Formative assessment**</td><td>**Quizzes**</td><td>2</td><td>10% (10)</td><td>5, 10</td><td>LO #1, 2, 10 and 11</td></tr>
<tr><td>**Assignments**</td><td>2</td><td>10% (10)</td><td>2, 12</td><td>LO # 3, 4, 6 and 7</td></tr>
<tr><td>**Projects / Lab.**</td><td>1</td><td>10% (10)</td><td>Continuous</td><td></td></tr>
<tr><td>**Report**</td><td>1</td><td>10% (10)</td><td>13</td><td>LO # 5, 8 and 10</td></tr>
<tr><td rowspan="2">**Summative assessment**</td><td>**Midterm Exam**</td><td>2 hr</td><td>10% (10)</td><td>7</td><td>LO # 1-7</td></tr>
<tr><td>**Final Exam**</td><td>2hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">**Total assessment**</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Introduction to organic chemistry
Week 2	Alkanes and alkenes
Week 3	Alkynes
Week 4	Alkyl halides
Week 5	Alcohols
Week 6	Amines
Week 7	Aldehydes
Week 8	Ketones
Week 9	Carboxylic acids and their derivatives
Week 10	Carboxylic acids and their derivatives
Week 11	Carboxylic acids and their derivatives
Week 12	Aromatic compounds
Week 13	Benzene
Week 14	Phenols
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Lab safety guide and laboratory glass wares
Week 2	Lab 2: Crystallization
Week 3	Lab 3: Liquid-liquid extraction
Week 4	Lab 4: Soxhlet extraction
Week 5	Lab 5: Extracting Caffeine from tea
Week 6	Lab 6: Simple and fractional distillation
Week 7	Lab 7: Determination of melting point and boiling point

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	Available in the Library?
Required Texts	Bruice, Paula Yurkanis. (2014). Organic Chemistry, 7th ed. New Jersey: Pearson Education International, pages 1392.	Yes
Recommended Texts	McMurry, John E., (2016). Organic Chemistry, 9th ed., Cengage Learning, pages 1518.	No
Websites	https://www.khanacademy.org/science/organic-chemistry https://www.masterorganicchemistry.com/	

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

Ministry of Higher Education and

Scientific Research - Iraq

Al-Nahrain University

College of Science

Department of Medical Physics

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		

Module Title	Medical Physics	Module Delivery	
Module Type	Supportive	☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	CREQ1217		
ECTS Credits	5		
SWL (hr/sem)	125		

Module Level	1	Semester of Delivery	2
Administering Department	Applied Pathological Analysis Department	College	College of Science
Module Leader	Dr. Ibrahim Karim Abbas	e-mail	Ibrahim.karim@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	M.Sc. Omar Khalid Suhail	e-mail	Omar.khalid@nahrainuniv.edu.iq
Module Reviewer	Dr. Ibrahim Karim Abbas	e-mail	Ibrahim.karim@nahrainuniv.edu.iq
Peer Reviewer Name	M.Sc. Omar Khalid Suhail	e-mail	Omar.khalid@nahrainuniv.edu.iq
Scientific Committee Approval Date	24/02/2024	Version Number	1
Lab. Staff.	M.Sc. Ahmed Mohammed, M.Sc. Saddam Yahya, M.Sc. Adhraa Falah, M.Sc. Nour Diaa, M.Sc. Nour Jumaa, M.Sc. Anwar Hamid, Dr. Noufal Haitham, Dr. Ruaa Hameed Abdulridha, M.Sc. Zahraa Malik.		

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	At the end of the course, the students will be able to: • Explain the scope of biology and physics. • Describe life activities from biophysics point of view. • Manipulate basic biological tool, record data and draw conclusions • Develop scientific attitude, skill and conduct biophysics experiments using scientific procedures. • Understand the basic concepts of the relation between physics and biology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	• To make students know about the relation between sound in medicine. • To make the students understand all about physics and its involvement with medicine.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. Introduction to medical physics: History and milestones in the field of medical physics Basic concepts of medical physics and applications. The relation of sound in medicine and laser in medicine.

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	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 محسوب لـ ١٥ اسبوعا			
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	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	All
	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	Introduction To Medical Physics
Week 2	The Mechanics of the Body
Week 3	The Energy Household of the Body
Week 4	The Pressure System of the Body
Week 5	The Electrical System of the Body
Week 6	Physics of The Skeletal System
Week 7	The Sound in Medicine
Week 8	**Mid exam**
Week 9	The Friction in Medical Physics
Week 10	Light in Medical Physics
Week 11	Elasticity
Week 12	Stability

Week 13	X-ray in medicine part
Week 14	The Pressure System Of The Body
Week 15	**final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1-2	Laboratory safety roles
Week 2-3	introduction
Week 3-4	Sound in medicine part 1
Week 4-5	Sound in medicine part 2
Week 5-6	Sound in medicine part 3
Week 6-7	Mid exam
Week 7-8	Light Reflection and Refraction part 1
Week 8-9	Light Reflection and Refraction part 2
Week 9-10	Light Reflection and Refraction part 3
Week 10-11	Viscosity part 1
Week 11-12	Viscosity part 2
Week 12-13	Viscosity part 3

Week 13-14	Second Exam.
Week 15	Final Exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Medical Physics by John R. Cameron, International Publication.	No (Available as an e-book)
Recommended Texts	Elements of Biophysics Randall 1998	No (Available as an e-book)
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	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

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	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	Calculus1		**Module Delivery**	
Module Type	Suplement		☒Theory ☒Lecture ☐Lab ☒Tutorial ☐Practical ☐Seminar	
Module Code	CREQ1201			
ECTS Credits	4			
SWL (hr/sem)	100			
Module Level		1	**Semester of Delivery**	2
Administering Department		Applied Pathological Analysis	**College**	College of Sciences
Module Leader	Athraa Abdulsalam		**e-mail**	athraa.a.s@nahrainuniv.edu.iq
Module Leader's Acad. Title		Assistant Lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor	Athraa Abdulsalam Ruqaya Saadi		**e-mail**	athraa.a.s@nahrainuniv.edu.iq
Peer Reviewer Name		Athraa Abdulsalam	**e-mail**	athraa.a.s@nahrainuniv.edu.iq
Review Committee Approval		24/02/2024	**Version Number**	1

<table>
<tr><td colspan="4" align="center">**Relation With Other Modules**

العلاقة مع المواد الدراسية الأخرى</td></tr>
<tr><td>**Prerequisite module**</td><td>None</td><td>**Semester**</td><td>None</td></tr>
<tr><td>**Co-requisites module**</td><td>None</td><td>**Semester**</td><td>None</td></tr>
</table>

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The aim of this course is for students to gain proficiency in computations. In calculus, we use two main tools for analyzing and describing the behavior of functions: limits and derivatives. Students will use these tools to solve application problems in a variety of settings ranging from chemistry to Biology.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. To determine the solution set of inequalities involving absolute value, 2. To determine the domain, range, and operation of someone's variable functions and the graphs. 3. To determine the limit and continuity of one variable function. 4. To determine the derivation of one variable function. 5. To determine the solution of problems involving the derivation of one variable function. 6. To determine the inverse function and its derivative. 7. To learn about the application of derivatives. 8. To determine the proper integral of one variable function. 9. To determine integral involving the fundamental theorem of Calculus and method of substitution. 10. To determine the solution of problems involving the integral of one variable function. 11. To compute integral involving transcendental functions. 12. To compute integral with advanced integration techniques. 13. To demonstrate the ability to think critically by recognizing patterns and determining and using appropriate techniques for solving a variety of integration problems.
Indicative Contents المحتويات الإرشادية	1. function and its graph, operation on function, trigonometry function. 2. Definition, theorems of limit, trigonometry function limit, limit on infinity, infinite limit, continuity function, 3. Definition and rule of derivate, a derivate of trigonometry function, chain rule, higher order derivate, implicit derivate, related rate, the basic concept of differential,

	5. Natural logarithm function, inverse function and its derivate, natural exponential function, general exponential function, general logarithm function, hyperbolic function and its inverse. 6. Proper integral, Fundamental Theorem of Calculus, basic rules of integration. 4- Methods of integration, method of substitution, partial integration method, trigonometry integral, and integral of rational function with partial fraction. 5- Improper integrals, test for convergence and divergence of improper integrals. 6- Application of Definite Integrals, Mean value theorem of integration, Area, solid revolution volume, and Arc length.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	The module will be presented to the students through a specified series of lectures, supported by practice and directed study outside the classroom. Formative assessment takes place throughout the module during lectures and feedback is given during these lectures.

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
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	35	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	2.667
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

<table>
<tr><td colspan="6" align="center">**Module Evaluation**
تقييم المادة الدراسية</td></tr>
<tr><td></td><td></td><td>**Time/Number**</td><td>**Weight (Marks)**</td><td>**Week Due**</td><td>**Relevant Learning Outcome**</td></tr>
<tr><td rowspan="3">**Formative assessment**</td><td>**Quizzes**</td><td>2</td><td>10% (10)</td><td>3, 8</td><td>LO #1, 2, and 3</td></tr>
<tr><td>**Assignments**</td><td>2</td><td>10% (10)</td><td>6, 9</td><td>LO # 4 and 5</td></tr>
<tr><td>**Report**</td><td>1</td><td>10% (10)</td><td>12</td><td>LO # 5 and 6</td></tr>
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<tr><td>**Final Exam**</td><td>3hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">**Total assessment**</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><td colspan="2" align="center">**Delivery Plan (Weekly Syllabus)**
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>**Material Covered**</td></tr>
<tr><td>**Week 1**</td><td>Preliminaries, elementary Functions, and graphing.</td></tr>
<tr><td>**Week 2**</td><td>Exponential growth and decay, Sequences, More population models.</td></tr>
<tr><td>**Week 3**</td><td>Limits, Continuity, Limits at infinity, The Sandwich Theorem and some trigonometric limits, Properties of continuous functions.</td></tr>
<tr><td>**Week 4**</td><td>Formal definition of the derivative, The power rule, the basic rules of differentiation, and the derivatives of polynomials.</td></tr>
<tr><td>**Week 5**</td><td>Midterm Exam.</td></tr>
<tr><td>**Week 6**</td><td>The product and quotient rules, and the derivatives of rational and power functions.
The chain rule and higher derivatives.
Derivatives of trigonometric functions.</td></tr>
<tr><td>**Week 7**</td><td>Derivatives of exponential functions.
Derivatives of inverse and logarithmic functions.
Approximations and local linearity</td></tr>
<tr><td>**Week 8**</td><td>Extrema and the Mean Value Theorem.
Monotonicity and Concavity.</td></tr>
<tr><td>**Week 9**</td><td>Extrema, inflection points, and graphing.
Optimization.</td></tr>
<tr><td>**Week 10**</td><td>L'Hospital's rule.</td></tr>
<tr><td>**Week 11**</td><td>Difference equations: stability.</td></tr>
<tr><td>**Week 12**</td><td>Antiderivatives.</td></tr>
</table>

Week 13	The definite integral. The Fundamental Theorem of Calculus.
Week 14	Applications of integration.
Week 15	**Preparatory Week**
Week 16	**Final Exam**

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Calculus for Biology and Medicine, fourth edition by Claudia Neuhauser & Marcus Roper.	No
Websites	www.mathhandbook.com	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
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Success Group (50 - 100)	**A** - Excellent	امتياز	90 - 100	Outstanding Performance
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Note:				

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MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information
معلومات المادة الدراسية

Module Title	Arabic Language	Module Delivery	
Module Type	**Basic**	☒Theory ☒Lecture ☐Lab ☒Tutorial ☐Practical ☒Seminar	
Module Code	URARA		
ECTS Credits	**2**		
SWL (hr/sem)	50		
Module Level	1	Semester of Delivery	2
Administering Department	Applied Pathological Analysis	College	College of Science
Module Leader	Dr. Rana Majed Hamed	e-mail	Rana.majid@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	PhD
Module Tutor	None	e-mail	None
Peer Reviewer Name	Dr. Fadhel Subhi Fadhel	e-mail	fadhel.subhi@nahrainuniv.edu.iq
Review Committee Approval	24/02/2024	Version Number	1

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	1. تغطية اساسيات اللغة العربية 2. معرفة اقسام اللغة العربية 3. تطوير مهارات القراءة والكتابة والاستماع 4. تنمية الثقافة اللغوية بفهم اللغة العربية بلغة ذات تاريخ وثقافة 5. تعلم مهارات الحديث والتحدث للتواصل بفعالية مع الاخرين
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	المعرفة والفهم حيث يجب ان يكون الخريج قادر على معرفة وفهم مايأتي: 1. القدرة على التحدث والكتابة باللغة العربية بطلاقة وبمستوى متقدم 2. فهم الثقافة العربية والتقاليد والقيم 3. قدرة الطالب على المشاركة في المجتمعات والندوات سواء في المجال الاكاديمي او المهني او الاجتماعي 4. قدرة الطالب على قراءة وتحليل النصوص الادبية والاكاديمية باللغة العربية ليسهل عليهم اجراء البحوث وكتابة الاوراق البحثية بشكل مناسب 5. الاستعداد للحياة المهنية من خلال قدرة الطالب على استخدام اللغة العربية بالترجمة والتعليم والعلاقات العامة او اي مجال اخر يتطلب التواصل باللغة العربية

Indicative Contents المحتويات الإرشادية	
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1.اسلوب المحاضرات والتطبيق بالامثلة 2.نظام الواجبات البيتية والسمنار

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	35	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
As		**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
	Midterm Exam	2 hr	10% (10)	7	LO # 1-7

Summative assessment	Final Exam	2hr	50% (50)	16	All
Total assessment		100% (100 Marks)			

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Week	Material Covered
Week 1	مدخل الكلام ومايتألف منه
Week 2	اقسام الكلمة وعلامات كل قسم
Week 3	انواع الجملة وعلامات الاعراب
Week 4	المبني والمعرب
Week 5	المبتدأ والخبر وانواع الخبر وتقديمه
Week 6	اختبار ١٠
Week 7	قصيدة للشاعر ابي الطيب المتنبي
Week 8	النواسخ (كان واخواتها)
Week 9	إن واخواتها
Week 10	تكملة الموضوع السابق
Week 11	علامات التنقيط مع رسم الهمزة
Week 12	اختبار ١٥
Week 13	العدد
Week 14	التوابع (صفة-العطف-التوكيد-البدل)
Week 15	الاسبوع التحضيري
Week 16	الامتحان النهائي

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	شرح ابن عقيل	
Recommended Texts	الادب الجاهلي/شوقي ضيف البيان والتبين/الجاحظ	
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

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	
Module Code	APPA218	☒ Lecture x Lab	
ECTS Credits	6	☒ Tutorial	
SWL (hr/sem)	79	☐ Practical ☒ Seminar	
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		

<table>
<tr><td colspan="6" align="center">Module Evaluation
تقييم المادة الدراسية</td></tr>
<tr><td colspan="2"></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>4</td><td>10% (10)</td><td>3, 7, 10, 12</td><td>LO #1, 2, 10 and 11</td></tr>
<tr><td>Assignments</td><td>2</td><td>10% (10)</td><td>2, 11</td><td>LO #1, 3, 6,8, and 12</td></tr>
<tr><td>Projects / Lab.</td><td>1</td><td>10% (10)</td><td>Continuous</td><td></td></tr>
<tr><td>Report/ Lab.</td><td>1</td><td>10% (10)</td><td>7</td><td>LO #1, 5 and 9</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>2 hr</td><td>10% (10)</td><td>7</td><td>LO # 1-7</td></tr>
<tr><td>Final Exam</td><td>2hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">Total assessment</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><td colspan="2" align="center">Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>Week 1</td><td>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</td></tr>
<tr><td>Week 2</td><td>Week 2: Carbohydrates
-Classification of carbohydrate
-Chemical structure of carbohydrates
-Monosaccharide structure
-Importance of Monosaccharide</td></tr>
<tr><td>Week 3</td><td>The chemical reaction of carbohydrates</td></tr>
<tr><td>Week 4</td><td>Lipids
-Lipid Classes
-structure
-Fatty acids and their derivatives</td></tr>
<tr><td>Week 5</td><td>Classification and function</td></tr>
<tr><td>Week 6</td><td>Properties
-Membranes
-Membranes structure
-Membranes function</td></tr>
<tr><td>Week 7</td><td>Amino acid
-amino acid structure</td></tr>
</table>

	-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	**Carbohydrates** Qualitative tests for carbohydrate (monosaccharides) Molish test Benedict's test, Barfoed's test , Bile's test , Seliwanoff's test , Osazon test
Week 3	**Carbohydrates** Test of sucrose Diphenylamine test for fructose and sucrose Iodine test for poly saccharides
Week 4	**Lipids** Test for phospholipid Acrolein test for glycerol Potassium test for glycerol
Week 5	**Lipids** 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
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	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	ANATOMY	**Module Delivery**	
Module Type	CORE	☒ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
Module Code	APPA 2110		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	1	**Semester of Delivery**	3
Administering Department	Applied Pathological Analysis	**College**	College of Science
Module Leader	Dr. Ruaa Hameed Abdulridha	**e-mail**	ruaa.hameed@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph. D.
Module Tutor	Dr. Ruaa Hameed Abdulridha Dr. Nawfal Haitham Shakir	**e-mail**	ruaa.hameed@nahrainuniv.edu.iq nawfal.haitham@nahrainuniv.edu.iq
Peer Reviewer Name	Dr. Ruaa Hameed Abdulridha	**e-mail**	ruaa.hameed@nahrainuniv.edu.iq
Scientific Committee Approval Date	10\9\2024	**Version Number**	1.0

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	**Course objectives:** At the end of the academic course, the student will be able to achieve the following goals: 1. To acquire knowledge of the normal structure of various human body systems 2. To master the basic medical information of anatomy as a cornerstone in understanding clinical sciences. 3. To prepare competent graduates familiar with medical sciences to benefit from them in their future practical lives and to perform their professional and humanitarian roles in society. 4. To understand the importance of anatomy and the location of organs in their specialization. 5. - To study the structure and organization of the human body and the composition of its various organs.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Understanding anatomical terms, positions, planes, and levels. 2. Identifying different types of tissues. 3. Recognizing different types of bones. 4. Classifying muscle tissues and their types. 5. Studying the functions of the body based on the anatomical structures that collectively form the human body, including the structures and functions of the Nervous, Digestive, Cardiovascular, Respiratory, and Reproductive systems. 6. Explore the stages of fetal development, along with an understanding of the five senses.
Indicative Contents المحتويات الإرشادية	1- **Introduction to Anatomy of the Human Body:** Definition of Anatomy, the Kinds of Anatomy, Directional terms in anatomy, Body planes, and Body Cavities &Serous Membranes. 2- **Structural levels and organization:** The human body exhibits many levels of structural complexity, and areas of the abdomen. 3- **Skeletal System – Head and Neck:** The human skeleton division, Skull all parts, spinal cord, and Joints. 4- **Skeletal System – Thoraxes and Upper Limbs:** The Thoraxes structure, the skeleton of the upper limb parts, and joints of the upper extremity.

	5- **Skeletal System –Lower Limbs:** the skeleton of the lower limb parts, and joints of the upper extremity.
	6- **Skeletal Muscles:** skeletal muscle characteristics, naming of skeletal muscle, direction, action, and number of skeletal muscles.
	7- **Nervous System:** structure and function.
	8- **Digestive System:** structure and function.
	9- **Respiratory System:** structure and function.
	10- **Reproductive System:** structure and function.
	11- **Embryology:** Embryology definition, embryogenesis, and steps of embryogenesis.
	12- **Special Senses:** special sense definition, vision, hearing, smell, and taste.

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.

<table>
<tr><th colspan="4">Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا</th></tr>
<tr><td>Structured SWL (h/Sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>63</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>4.2</td></tr>
<tr><td>Unstructured SWL (h/Sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>37</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>2.5</td></tr>
<tr><td>Total SWL (h/Sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td colspan="3">100</td></tr>
</table>

Module Evaluation تقييم المادة الدراسية		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
As					
Formative assessment	Quizzes	2	10% (10)	2,5	All
	Assignments& H. W	2	5% (5)	3, 11	All
	Projects	1	15% (10)	Continuous	All
	Seminar	1	10% (10)	Continuous	All
Summative assessment	Midterm Exam	1 hr.	10% (10)	7	All
	Final Exam	3 hr.	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	**Introduction to Anatomy of the Human Body:** Definition of Anatomy, the Kinds of Anatomy, Directional terms in anatomy, Body planes, and Body Cavities &Serous Membranes.
Week 2	**Structural levels and organization:** The human body exhibits many levels of structural complexity, and areas of the abdomen.
Week 3	**Skeletal System – Head and Neck:** The human skeleton division, Skull all parts, spinal cord, and Joints.
Week 4	**Skeletal System – Thoraxes and Upper Limbs:** The Thoraxes structure, the skeleton of the upper limb parts, and joints of the upper extremity.

Week 5	**Skeletal System –Lower Limbs:** the skeleton of the lower limb parts, and joints of the upper extremity.
Week 6	**Skeletal Muscles:** skeletal muscle characteristics, naming of skeletal muscle, direction, action, and number of skeletal muscles.
Week 7	**Mid-term Exam**
Week 8	**Nervous System:** structure and function.
Week 9	**Digestive System:** structure and function.
Week 10	**Respiratory System:** structure and function.
Week 11	**Reproductive System:** structure and function.
Week 12	**Embryology:** Embryology definition, embryogenesis, and steps of embryogenesis.
Week 13	**Special Senses:** special sense definition, vision, hearing, smell, and taste.
Week 14	**Preparatory Week**
Week 15	**Final Exam**

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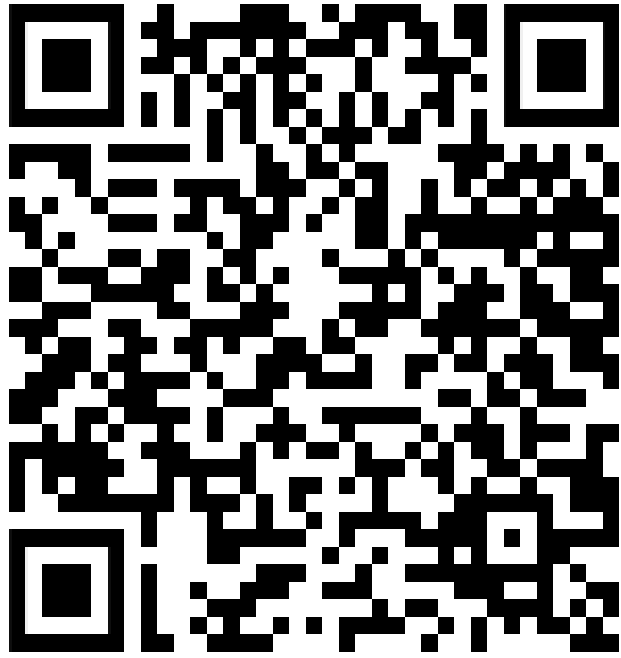<tr><th colspan="3">Learning and Teaching Resources
مصادر التعلم والتدريس</th></tr>
<tr><th></th><th>Text</th><th>Available in the Library?</th></tr>
<tr><td>Required Texts</td><td>AGUR, A. M. & DALLEY II, A. F. 2023. Grant's atlas of anatomy, Lippincott Williams & Wilkins.</td><td>No</td></tr>
<tr><td>Recommended Texts</td><td>1. NETTER, F. H. 2014. Atlas of Human Anatomy, Professional Edition E-Book: including NetterReference. com Access with full downloadable image Bank, Elsevier health sciences.
2. ALBERTINE, K. H. 2007. The Anatomy Student's Self-test Colouring Book, Macmillan Education AU.</td><td>No</td></tr>
<tr><td>Websites</td><td colspan="2">https://repository.poltekkes-kaltim.ac.id/1144/1/Essentials%20of%20Anatomy%20and%20Physiology%20(%20PDFDrive%20).pdf</td></tr>
</table>

<table>
<tr><th colspan="5">Grading Scheme
مخطط الدرجات</th></tr>
<tr><th>Group</th><th>Grade</th><th>التقدير</th><th>Marks (%)</th><th>Definition</th></tr>
<tr><td rowspan="5">Success Group
(50 - 100)</td><td>A - Excellent</td><td>امتياز</td><td>90 - 100</td><td>Outstanding Performance</td></tr>
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<tr><td>E - Sufficient</td><td>مقبول</td><td>50 - 59</td><td>Work meets minimum criteria</td></tr>
<tr><td rowspan="2">Fail Group
(0 – 49)</td><td>FX – Fail</td><td>راسب (قيد المعالجة)</td><td>(45-49)</td><td>More work is required but credit awarded</td></tr>
<tr><td>F – Fail</td><td>راسب</td><td>(0-44)</td><td>Considerable amount of work required</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table>

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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	Microbiology	Module Delivery	
Module Type	CORE	☒ Theory	
Module Code	APPA 217	☐ Lecture	
		☒ Lab	
ECTS Credits	6	☒ Tutorial	
		☐ Practical	
SWL (hr/sem)	175	☒ Seminar	

Module Level	2	Semester of Delivery	3
Administering Department	Applied Pathological Analysis	**College**	College of Science
Module Leader	Dr. Wael Adil Obaid	**E-mail**	Waeladil@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph.D.
Module Tutor	Dr. Wael Adil Obaid Dr. Evan H. Sulaiman	**e-mail**	Waeladil@nahrainuniv.edu.iq evan.hameed@nahrainuniv.edu.iq
Peer Reviewer Name	Dr. Nawfal Haitham Shakir	**E-mail**	nawfal.haitham@nahrainuniv.edu.iq
Review Committee Approval	10/9/2024	**Version Number**	1.0
Laboratory Staff	Dr. Nawfal Haitham Shakir, Dr. Mustafa Attiyah Hadid, MSc. Saddam Yahya Diwan, MSc. Mays Abdulhadi, MSc. Noor Dheyaa Jaafar, MSc. Zina Jabbar Ghaib Hassan, MSc. Alaa Mohsen.		

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	**The course is designed to teach the students:** 1. **Comprehensive Introduction to Microbiology:** Covers fundamental concepts and principles for studying microorganisms such as bacteria, viruses, fungi, and protozoa. 2. **Classification of Microorganisms:** Understand the various classification schemes applied to microorganisms, including those based on molecular criteria. 3. **Diversity of Pathogens and Pathogenic Mechanisms:** Explore the diversity of pathogens, including viruses, and the mechanisms through which they cause human infectious diseases. 4. **Comparison of Bacterial and Eukaryotic Cells:** Identify the key features of bacterial cells, particularly those that differ from eukaryotic cells, including genetic information and its transfer. 5. **Study and Cultivation of Microorganisms:** Equip students with knowledge on how to study and cultivate microorganisms. 6. **Bacterial Cell Structure and Function:** Outline the relationship between bacterial cell structure and their functions. 7. **Fungi & Virology and Their Impact:** Identify the main groups of fungi and viruses, understanding their life histories, economic significance, and their beneficial and detrimental effects on humans. 8. **Overview of Microbiology and Infectious Diseases:** Provide an overview of microbiology and infectious diseases in both community and hospital settings, introducing core concepts covering bacteriology, virology, mycology, parasitology, and the role of vaccines in disease prevention. 9. **Bacterial Genetics:** Study the genetic material of bacteria, including plasmids, replication, mutation, and genetic recombination, and understand their role in bacterial diversity and adaptation. 10. **Antibiotic Resistance:** Increase awareness of the mechanisms of antibiotic resistance in microorganisms and the challenges it presents to modern medicine. 11. **Role of Microorganisms in Everyday Life:** Examine the diversity of the structure and function of microorganisms, emphasizing their fundamental role in medicine, biotechnology, and the development of vaccines. 12. **Vaccination:** Understand the principles and importance of vaccination in preventing infectious diseases, and explore the development and application of vaccines.
Module Learning Outcomes	1. **Molecular Structures and Functions:** Describe the specialized molecular structures found in prokaryotes (bacteria and archaea), viruses, and single-cell eukaryotes (algae, fungi, protozoa), and explain their functions. **Microorganisms**

مخرجات التعلم للمادة الدراسية	**as Disease Agents:** Explain how microorganisms act as disease agents, focusing on the molecular mechanisms responsible for different pathologies. 2. **Practical Applications:** Identify the practical applications of microorganisms in producing chemicals such as antibiotics and high-value metabolites. 3. **Microbial Structure and Function:** Demonstrate understanding of the fundamental concepts and principles related to microbial structure and function. 4. **Bacterial Isolation and Identification:** Demonstrate the ability to isolate and identify bacteria to the species level using appropriate culture and diagnostic techniques. 5. **Epidemiology and Control of Infectious Diseases:** Evaluate the factors involved in the epidemiology, pathogenesis, detection, diagnosis, and control of infectious diseases, including the use of antibiotics, vaccines, and antibody therapies. 6. **Microbial Pathogenesis:** Demonstrate knowledge of microbial pathogenesis mechanisms and the outcomes of infections, including chronic microbial infections. 7. **Laboratory Diagnosis:** Demonstrate knowledge and practical skills in the laboratory diagnosis of microbial diseases, including the isolation and characterization of specific microbes in clinical specimens. 8. **Pathogenic Microorganisms:** Demonstrate advanced knowledge of the nature and classification of pathogenic microorganisms, particularly viruses and bacteria. 9. **Microbiological Safety and Techniques:** Demonstrate the ability to perform standard microbiological techniques according to protocols, ensuring safety and minimizing infection risks in compliance with local microbiological safety regulations. 10. **Microbial Metabolic Processes:** Outline the major microbial metabolic processes and describe how these processes influence microbial growth and survival. 11. **Factors Affecting Growth and Survival:** Describe the factors that influence the growth and survival of microorganisms.
Indicative Contents المحتويات الإرشادية	1. **General & History of Microbiology:** Overview of the field and its historical development. 2. **Microbial Diversity and Classification:** Study of the diversity of microorganisms and their classification systems. 3. **Microbial Cell Shape and Structure:** Examination of the various shapes and structural components of microbial cells. 4. **Microbial Growth and Metabolism:** Understanding microbial growth processes and metabolic pathways. 5. **Bacterial Reproduction:** Exploration of bacterial reproduction mechanisms. 6. Microbial Control and Sterilization Methods of sterilization (autoclaving, filtration, radiation), Disinfection practices (chemical disinfectants, antiseptics), antimicrobial agents (antibiotics, antivirals, antifungals) and Mechanisms of action and clinical uses. 7. **Microbial Genetics:** Study of genetic material, gene expression, mutation, and genetic recombination in microorganisms. 8. **Microbial Pathogenesis and Microflora:** Understanding how microorganisms cause disease and the role of normal Microflora. 9. **Host-Microbe Interactions: Normal Microbiota and Its Roles and** Roles of normal flora in health and disease prevention.

	10. Fungal Structure and Function: Examination of the structure and function of fungi.
	11. Viral Structure and Replication: Understanding the structure and replication processes of viruses and Study of vaccines and their role in preventing infectious diseases.
	12. Parasitology: Types of parasites (protozoa, helminths), Characteristics and life cycles

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. Use 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			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6.3
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	81	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	5.4
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	175		

<table>
<tr><td colspan="6" align="center">**Module Evaluation**
تقييم المادة الدراسية</td></tr>
<tr><td></td><td></td><td>**Time/Number**</td><td>**Weight (Marks)**</td><td>**Week Due**</td><td>**Relevant Learning Outcome**</td></tr>
<tr><td rowspan="4">**Formative assessment**</td><td>**Quizzes**</td><td>2</td><td>10% (10)</td><td>2,5</td><td>All</td></tr>
<tr><td>**Assignments& H.W**</td><td>2</td><td>5% (5)</td><td>3, 11</td><td>All</td></tr>
<tr><td>**Projects / Lab.**</td><td>1</td><td>15% (10)</td><td>Continuous</td><td>All</td></tr>
<tr><td>**Seminar**</td><td>1</td><td>10% (10)</td><td>Continuous</td><td>All</td></tr>
<tr><td rowspan="2">**Summative assessment**</td><td>**Midterm Exam**</td><td>1 hr</td><td>10% (10)</td><td>7</td><td>All</td></tr>
<tr><td>**Final Exam**</td><td>3hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">**Total assessment**</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><td colspan="2" align="center">**Delivery Plan (Weekly Syllabus)**
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>**Material Covered**</td></tr>
<tr><td>**Week 1**</td><td>**Introduction to Microbiology:** History of microbiology, The scope of microbiology Importance of microbes in nature and human health.</td></tr>
<tr><td>**Week 2**</td><td>**Microbial Diversity, Classification, and Taxonomy:** The five-kingdom and three-domain classification systems, Taxonomic hierarchy, Nomenclature rules.</td></tr>
<tr><td>**Week 3**</td><td>**Microbial Cell Structure and Function:** Bacterial cell wall (Gram-positive and Gram-negative), Cell membrane, cytoplasm, and ribosomes, Flagella, pili, and fimbriae</td></tr>
<tr><td>**Week 4**</td><td>**Bacterial Growth and Reproduction:** Bacterial growth phases, Binary fission and spore formation, Factors affecting bacterial growth (temperature, pH, oxygen, etc.).</td></tr>
<tr><td>**Week 5**</td><td>**Microbial Metabolism:** Catabolism and anabolism, Glycolysis, TCA cycle, fermentation, Electron transport chain and ATP production.</td></tr>
<tr><td>**Week 6**</td><td>**Microbial Genetics:** Structure of bacterial DNA and plasmids, Mechanisms of genetic variation (mutation, transformation, conjugation, transduction), Horizontal gene transfer.</td></tr>
<tr><td>**Week 7**</td><td>**Mid-Term Examination**</td></tr>
<tr><td>**Week 8**</td><td>**Microbial Control and Sterilization:** Sterilization and disinfection techniques, Antimicrobial agents: antibiotics, antivirals, and antifungals, Mechanisms of resistance.</td></tr>
<tr><td>**Week 9**</td><td>**Microbial Pathogenesis:** Mechanisms of bacterial infection (adherence, invasion, evasion of immune response), Toxins: exotoxins and endotoxins, Examples of bacterial diseases.</td></tr>
<tr><td>**Week 10**</td><td>**Host-Microbe Interactions:** Normal microbiota and its roles, The immune system's response to microbes, Vaccination and immunity.</td></tr>
</table>

Week 11	**Introduction to Mycology:** Structure and classification of fungi, Fungal reproduction and growth, Fungal pathogens and mycoses.
Week 12	**Introduction to Virology:** Structure and classification of viruses, Viral replication cycles, Pathogenesis of viral infections.
Week 13	**Parasitology:** Overview of parasitic organisms (protozoa, helminths, Life cycles of parasites Host-pathogen interactions in parasitic infections.
Week 14	Helminths
Week 15	**Preparatory Week**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Weeks 1-3	**Lab 1:** Orientation to the Microbiology Lab **Lab 2:** Laboratory Equipment and Microscopy **Lab 3**: Sterilization and Disinfection
Weeks 4-6	**Lab 4:** Media Preparation and Culturing Microbes **Lab 5:** Handling and Observation of Patient Specimens **Lab 6:** Diagnostic Methods for Microorganisms
Week 7	**Mid-Term Examination**
Weeks 8-10	**Lab 8:** Staining Techniques Overview **Lab 9:** Simple Staining Techniques **Lab 10:** Differential Staining Techniques
Weeks 11-13	**Lab 11:** Biochemical Tests for Bacterial Identification **Lab 12:** Antimicrobial Susceptibility Testing **Lab 13:** Microbial Enumeration and Counting
Week 14	**Lab 14:** Culture of Fungi and Virus
Week 15	**Preparatory Week before the final exam.**

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	**Available in the Library?**
Required Texts	Brock Biology of Microorganisms Microbiology: An Introduction	No
Recommended Texts	Microbiology Journal Microbiology and Virology Journal Cell Biology Journal DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.	No
Websites	/https://www.khanacademy.org /https://www.microbelibrary.org	

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

	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

<table>
<tr><td colspan="4" align="center">Module Information
معلومات المادة الدراسية</td></tr>
<tr><td>Module Title</td><td>Histology</td><td colspan="2">Module Delivery</td></tr>
<tr><td>Module Type</td><td>CORE</td><td colspan="2" rowspan="5">☒ Theory
☒ Lecture
☒ Lab
☒ Tutorial
☒ Practical
☒ Seminar</td></tr>
<tr><td>Module Code</td><td></td></tr>
<tr><td>ECTS Credits</td><td>7</td></tr>
<tr><td>SWL (hr/sem)</td><td>79</td></tr>
<tr><td>Module Level</td><td>UGx11 1</td><td>Semester of Delivery</td><td>1</td></tr>
<tr><td>Administering Department</td><td>Applied Pathological Analysis</td><td>College</td><td>College of Science</td></tr>
<tr><td>Module Leader</td><td>Dr. Evan H. Sulaiman</td><td>e-mail</td><td>evan.hameed@nahrainuniv.edu.iq</td></tr>
<tr><td>Module Leader's Acad. Title</td><td>Lecturer</td><td>Module Leader's Qualification</td><td>Ph. D.</td></tr>
<tr><td>Module Tutor</td><td>Dr. Wael Adil Obaid
Dr. Evan H. Sulaiman
MSC. Hadeer Faris</td><td>E-mail</td><td>Waeladil@nahrainuniv.edu.iq
evan.hameed@nahrainuniv.edu.iq
hadeer.faris@nahrainuniv.edu.iq</td></tr>
<tr><td>Peer Reviewer Name</td><td>Dr. Evan H. Sulaiman</td><td>e-mail</td><td>evan.hameed@nahrainuniv.edu.iq</td></tr>
<tr><td>Scientific Committee Approval Date</td><td>10/9/2024</td><td>Version Number</td><td>1.0</td></tr>
<tr><td>Laboratory Staff</td><td colspan="3">Dr. Ruaa Hameed, MSC. Hadeer Faris, MSC. Zeena Murshed, MSC. Ahmed Jabbar, MSc. Zainab Ali, MSC. Eman Adnan Abdulmajeed, MSC. Nada Mohammed</td></tr>
</table>

<table>
<tr><td colspan="4" align="center">Relation with other Modules
العلاقة مع المواد الدراسية الأخرى</td></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>
</table>

<table>
<tr><td colspan="2" align="center">Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية</td></tr>
<tr>
<td>Module Aims
أهداف المادة الدراسية</td>
<td>The course aims to teach students the following:

Histology is an essential tool for medical students. This study aims to introduce the student to the basic types of cells and classify those cells according to the study of the shape of the cells that form those tissues and the basic function of these cells, which form the various tissues and organs of the human body, by examining thin slices of tissue under a microscope.</td>
</tr>
<tr>
<td>Module Learning Outcomes

مخرجات التعلم للمادة الدراسية</td>
<td>1. Learn the structure of organs
2. The ability to distinguish the types of tissues that make up organs.
3. Understand how the body's organs perform their functions
4. The ability to make tissue sections
5. Learn how to obtain samples from the patient and how to deal with them</td>
</tr>
<tr>
<td>Indicative Contents
المحتويات الإرشادية</td>
<td>Introduction to histology, epithelial tissue and its types</td>
</tr>
<tr><td></td><td>Glandular epithelial tissue and specializations on the surfaces of epithelial tissues</td></tr>
<tr><td></td><td>Connective tissue, elements of connective tissue and types of connective tissue</td></tr>
<tr><td></td><td>Disintegrated connective tissue and tendon and introduction to special connective tissue</td></tr>
<tr><td></td><td>Skeletal tissue, cartilage and bone types</td></tr>
<tr><td></td><td>Mid-term exam</td></tr>
<tr><td></td><td>Blood formation and muscle tissue, skeletal, smooth and cardiac muscles</td></tr>
<tr><td></td><td>Nerve tissue, nerve cells, nerve fibers</td></tr>
<tr><td></td><td>Final exam</td></tr>
</table>

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	- Encourage students to take structured notes during lectures. - - Provide practical questions and problem-solving exercises. - - Actively participate in group discussions and collaborative activities. - - Use textbooks, online resources, and supplementary materials to enhance learning. - - Provide constructive feedback on assignments and assessments. - - Review helps students understand their strengths and areas for improvement. Teaching Strategies: - Encourage students to actively engage with the material through group discussions and activities to promote deeper understanding. - Provide 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	94	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	56	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	150		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	all	ALL
	Assignments	2	5% (10)	3.11	ALL
	Projects / Lab.	0	15% (10)	Continues	ALL
	Seminar	1	10% (10)	Continues	ALL
Summative assessment	Midterm Exam	1 hr	10% (10)	7	ALL
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
Material Covered	
Week 1	Introduction and overview of methods used in histology, Classification of Histology, Tissue preparation
Week 2	Overview of Cell structure & types
Week 3	Tissues: Concept and classifications of primary tissues.
Week 4	Epithelial tissue: Simple Ep. T. , Compound Ep. T.
Week 5	The glandular Tissues (The Glands)
Week 6	Connective and Supportive Tissue: Embryonic and adult C.T. Connective Tissue proper (General C.T.)
Week7	**Exam**
Week8	Cartilage, Histogenesis, Growth and repair of cartilage
Week9	Bone & Histogenesis of Bone
Week 10	The Blood
Week11	The haemopoietic organ (bone marrow), Formation of blood cells.
Week12	Muscular tissue
Week13	Nervous tissue: Overview of nervous system (CNS & PNS) Nervous system: the Nerve cells (neurons) and their classification
Week14	Supporting cells of nervous system
Week 15	**Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
Weeks	**Material Covered**
Week 1	Microscope: study the microscope parts of types and lines, how can be used
Week 2	Preparation of slides, methods and materials used
Week 3	Epithelial tissue, The Glands
Week 4	Connective tissue Cartilage ,Bone, bone marrow
Week 5	Muscular tissue
Week 6	Nervous tissue
Week 7	Brain, spinal cords, meninges

	Learning and Teaching Resources مصادر التعلم والتدريس	
	Text	**Available in the Library?**
Required Texts	Histology Dr. Kawakib Abdul Qadir University of Baghdad	yes
Recommended Texts	difori's Text and Atlas of Histology	yes
Websites	https://docs.google.com/file/d/0B3yBUlQNJt0ldjhlVlZSZmJHUUk/edit?resourcekey=0-EvVSt1KzjYHTm24HsAhU2A	

APPENDIX:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group **(50 - 100)**	**A -** Excellent	امتياز	90 - 100	Outstanding Performance
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Note:

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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	

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 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.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	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
Indicative Contents المحتويات الإرشادية	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)

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	1- Dividing students into several groups and encourage them to work as a 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.	

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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	NEW HEADWAY PLUS		**Module Delivery**	
Module Type	BASIC		☒Theory	
Module Code	URENG2		☐Lecture	
			☐Lab	
ECTS Credits	2		☐Tutorial	
SWL (hr/sem)	32		☐Practical	
			☐Seminar	
Module Level	UGx11	**Semester of Delivery**		3
Administering Department	Applied Pathological Analysis	**College**	College of Sciences	
Module Leader	Dr. Khawla A. Kasar Assist. Lect. Israa Namh Abdula	**e-mail**	khawla.kasar@nahrainuniv.edu.iqisraa.alsultani@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**		Master's Degree
Module Tutor	None	**e-mail**	None	
Peer Reviewer Name	None	**e-mail**	None	
Review Committee Approval	10\9\2024	**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
	1. Developing Basic Communication Skills:
	  - Enable students to express themselves effectively in everyday situations.
	  - Focus on building a foundation in speaking and listening.
	2. Enhancing Reading Comprehension:
	  - Improve students' ability to understand and interpret written texts.
	  - Introduce strategies for effective reading comprehension.
	3. Strengthening Writing Proficiency:
	  - Develop students' writing skills across different genres (e.g., essays, emails, reports).
	  - Emphasize grammar, sentence structure, and vocabulary usage.
	4. Listening Skills Development:
	  - Improve students' ability to comprehend spoken English in various contexts.
	  - Provide exposure to different accents and speaking speeds.
	5. Effective Presentation Skills:
	  - Equip students with the skills to deliver clear and engaging presentations.
	  - Focus on aspects such as organization, delivery, and visual aids.

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Students will demonstrate the ability to initiate and sustain simple conversations in English. 2. Students will be able to deal with the basics of English language Grammar. 3. Students will enhance their knowledge of pathology-related vocabulary. 4. Students will be able to ask and respond to basic questions related to personal information, daily activities, and immediate surroundings. 5. Students will exhibit improved reading comprehension by accurately summarizing and analyzing information from a variety of texts. 6. Students will deliver clear and organized presentations using appropriate language and visuals.
Indicative Contents المحتويات الإرشادية	Advanced Communication Skills: • Greetings and introductions • Describing daily routines Reading Comprehension: • Reading stories and articles

	• Comprehension exercises with questions
	
	Writing Proficiency:
	  • Article writing
	  • Summarizing various texts
	
	Vocabulary Expansion:
	  • Everyday vocabulary
	  • Academic vocabulary
	
	Listening Skills Development:
	  • Listening to dialogues and conversations
	  • Podcasts and audio materials

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	• Emphasize interactive and communicative activities to engage students actively in the learning process • Design tasks that require students to use English to accomplish specific goals, fostering language use in context. • Recognize and accommodate diverse learning styles and paces within the classroom. • Incorporate authentic materials like newspaper articles, blogs, or videos to expose students to real-life language use. • Implement ongoing formative assessments, such as quizzes, peer evaluations, and class discussions, to gauge student progress. • Provide constructive feedback on both spoken and written language, and encourage students to reflect on their learning experiences • Adapt lesson plans based on the evolving needs and interests of the students, allowing for flexibility in the teaching approach.

Student Workload (SWL)			
الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	32	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	18	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

<table>
<tr><td colspan="6">Module Evaluation
تقييم المادة الدراسية</td></tr>
<tr><td></td><td></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>2</td><td>10% (10)</td><td>5, 10</td><td>LO # 2, 1, 5</td></tr>
<tr><td>Report</td><td>2</td><td>10% (10)</td><td>11</td><td>LO # 1,6</td></tr>
<tr><td>Assignments</td><td>2</td><td>10% (10)</td><td>10-14</td><td></td></tr>
<tr><td>Presentation</td><td>2</td><td>10% (10)</td><td>14</td><td>LO # 6</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>2 hr</td><td>10% (10)</td><td>7</td><td>LO # 1-7</td></tr>
<tr><td>Final Exam</td><td>2hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
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</table>

<table>
<tr><td colspan="2">Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>الأسبوع الاول</td><td>Introduction to the course, syllabus, and expectations.</td></tr>
<tr><td>الأسبوع الثاني</td><td>Unit One of the textbook: Tenses – writing formal e-mails</td></tr>
<tr><td>الأسبوع الثالث</td><td>Unit Two of the textbook: Describing objects and people – Collocations</td></tr>
<tr><td>الأسبوع الرابع</td><td>Grammar: Irregular verbs- making connections with words</td></tr>
<tr><td>الأسبوع الخامس</td><td>Writing Skills: Basics of academic writing</td></tr>
<tr><td>الأسبوع السادس</td><td>Reading Comprehension: Reading extracts from a novel+ discussion</td></tr>
<tr><td>الأسبوع السابع</td><td align="center">Mid-Exam</td></tr>
<tr><td>الأسبوع الثامن</td><td>Unit Three of the textbook: Quantity – Articles – Pathology-related vocabulary part1</td></tr>
<tr><td>الأسبوع التاسع</td><td>Writing basics: Summarizing texts – how to extract information from various texts</td></tr>
<tr><td>الأسبوع العاشر</td><td>Grammar: Passive and active voice- Reported speech</td></tr>
<tr><td>الأسبوع الحادي عشر</td><td>Listening skill: Listening to a podcast- discussions</td></tr>
<tr><td>الأسبوع الثاني عشر</td><td>Speaking skill: Exchanging and discussing information about DNA and Google</td></tr>
<tr><td>الأسبوع الثالث عشر</td><td>Unit Four of the textbook: Pathology-related vocabulary part2 - Comparative and superlative adjectives</td></tr>
<tr><td>الأسبوع الرابع عشر</td><td>Writing and talking about personal interests.
-Group activity: planning a class event based on shared interests.</td></tr>
<tr><td>الأسبوع الخامس عشر</td><td align="center">final exam preparation</td></tr>
</table>

<table>
<tr><td colspan="3" align="center">**Learning and Teaching Resources**
مصادر التعلم والتدريس</td></tr>
<tr><td></td><td align="center">**Text**</td><td align="center">**Available in the Library?**</td></tr>
<tr><td>**Required Texts**</td><td>New Headway Plus: Pre-intermediate</td><td></td></tr>
<tr><td>**Recommended Texts**</td><td></td><td></td></tr>
<tr><td>**Websites**</td><td>www.youtube.com (short videos+ chosen movies)</td><td></td></tr>
</table>

APPENDIX:

GRADING SCHEME				
مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
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College of Science
Applied Pathological Analysis
Department

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	جرائم نظام البعث في العراق	**Module Delivery**
Module Type	BASIC	☐Theory ☒Lecture ☐Lab ☐Tutorial ☐Practical ☐Seminar
Module Code	URBRC	
ECTS Credits	2	
SWL (hr/sem)	50	

Module Level	UGx11 1	**Semester of Delivery**	1
Administering Department	Applied Pathological Analysis	**College**	College of Science
Module Leader	MSc Noor Muneer Basheer	**e-mail**	Noor.M.B@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer Assist.	**Module Leader's Qualification**	MSc
Module Tutor	Non	**e-mail**	Non
Peer Reviewer Name	Non	**e-mail**	Non
Review Committee Approval	10\9\2024	**Version Number**	1.0

Relation With Other Modules			
العلاقة مع المواد الدراسية الأخرى			
	Semester	لا يوجد	**Prerequisite module**
	Semester	لا يوجد	**Co-requisites module**
Module Aims, Learning Outcomes and Indicative Contents			
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية			
تهدف مادة الكورس إلى تعليم الطلاب ما يلي: 1. تعريف الطالب بمفاهيم وتعاريف لها علاقة بمادة جرائم نظام البعث التي ارتكبها ابان حكمه للعراق. 2. معرفة طلبة الجامعة بحقيقة حياة عقود من الزمن عاشها العراق في فترة حكم نظام البعث في العراق. 3. زيادة معرفة الطلبة بالحقائق دون التأثر بأي تكتم اعلامي عن جرائم نظام البعث في العراق. • وصف المقرر: ان مادة جرائم نظام البعث في العراق من المواد الهامة والضرورية للطلبة لكونها تعرفهم بالأحداث والظروف والانتهاكات التي شهدها العراق ابان حكم نظام البعث من عام ١٩٦٨ الى عام ٢٠٠٣ . وتوضح المادة للطلبة اثار سلوكيات نظام حكم البعث في العراق على المجتمع العراقي.			**Module Aims** أهداف المادة الدراسية
من خلال تدريس هذه المادة هناك عدة مخرجات منها : 1. هناك اهداف معرفية عن طريق شرح كافة الجرائم المذكورة حتى لا يتم الوقوع بها . 2. توصيل المعلومة بشكل مبسط عن طريق استعمال كافة الوسائل المتاحة داخل القاعة. 3. تكليف الطلبة بعمل تقارير عن الموضوع المدروس. 4. النقاشات والحوارات المتبادلة . 5. اطلاع الطالب على انتهاك حقوق الانسان سابقاً من خلال هذه المادة.			**Module Learning Outcomes** مخرجات التعلم للمادة الدراسية
معرفة مفهوم الجرائم من الناحية اللغوية والاصطلاحية ودراسة اهم اقسامها.			**Indicative Contents** المحتويات الإرشادية
التعرف على جرائم نظام البعث وفق توثيق قانون المحكمة الجنائية العراقية العليا عام 2005م.			
التعرف على انواع الجرائم الدولية التي حدثت واصدرت قرارات من المحكمة الجنائية العليا بخصوصها.			
معرفة الجرائم النفسية والاجتماعية واثارها وابرز انتهاكات النظام البعثي في العراق.			
دراسة موقف النظام البعثي من الدين .			
معرفة كيف تم انتهاكات القوانين العراقية			
التعرف على صور انتهاكات حقوق الانسان وجرائم السلطة.			
معرفة اماكن السجون والاحتجاز لنظام البعث			
التعرف على الجرائم البيئية لنظام البعث في العراق			
معرفة ما مدى تأثير التلوث الحربي والاشعاعي وانفجار الالغام.			
دراسة تجفيف الاهوار و تجريف البساتين (النخيل والاشجار والمزروعات)			
التعرف على جرائم المقابر الجماعية			

معرفة احداث مقابر الابادة الجماعية المرتكبة من النظام البعثي في العراق		
دراسة التصنيف الزمني لمقابر الابادة الجماعية في العراق للمدة 1993م-2003م		
امتحان النهائي		

<table>
<tr><th colspan="2">Learning and Teaching Strategies
استراتيجيات التعلم والتعليم</th></tr>
<tr><td>Strategies
الاستراتيجيات</td><td>استراتيجيات التعليم:
- بشكل أساسي: النقاش والحوار المتبادل بين الأستاذ والطلبة.
- تقديم وثائقيات بصورة مستمرة لتقريب الفهم.
- اعداد أوراق عمل مختصرة من مجاميع يتم اختيارها أسبوعيا.
- المراجعة تساعد الطلاب على فهم نقاط القوة لديهم ومجالات التحسين.
- POWERPOINT</td></tr>
</table>

<table>
<tr><th colspan="4">Student Workload (SWL)
الحمل الدراسي للطالب</th></tr>
<tr><td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>33</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>2.2</td></tr>
<tr><td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>17</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>1.1</td></tr>
<tr><td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td colspan="3">50</td></tr>
</table>

<table>
<tr><th colspan="6">Module Evaluation
تقييم المادة الدراسية</th></tr>
<tr><td colspan="2"></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>2</td><td>10% (10)</td><td>5% (10)</td><td>LO #1, 2, 10 and 11</td></tr>
<tr><td>Assignments</td><td>2</td><td>10% (10)</td><td>2, 12</td><td>LO # 3, 4, 6 and 7</td></tr>
<tr><td>Projects / Lab.</td><td>1</td><td>10% (10)</td><td>Continuous</td><td></td></tr>
<tr><td>Report</td><td>1</td><td>10% (10)</td><td>13</td><td>LO # 5, 8 and 10</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>2 hr</td><td>10% (10)</td><td>7</td><td>LO # 1-7</td></tr>
<tr><td>Final Exam</td><td>2hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">Total assessment</td><td colspan="2">100% (100 Marks)</td><td></td><td></td></tr>
</table>

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري		
المواضيع المغطاة خلال الفصل		الاسابيع
مقدمة عامة وتأسيسية حول الموضوع / جرائم نظام البعث وفق قانون المحكمة الجنائية العراقية العليا عام 2005		الاسبوع الاول
الجرائم النفسية والاجتماعية وأثارها وابرز انتهاكات النظام البعثي في العراق		الاسبوع الثاني
موقف النظام البعثي من الدين		الاسبوع الثالث
امتحان يومي + عرض تقارير		الاسبوع الرابع
معرفة كيف تم انتهاكات القوانين العراقية		الاسبوع الخامس
التعرف على صور انتهاكات حقوق الانسان وجرائم السلطة.		الاسبوع السادس
معرفة اماكن السجون والاحتجاز لنظام البعث		الاسبوع السابع
امتحان منتصف الفصل		الاسبوع الثامن
التعرف على الجرائم البيئية لنظام البعث في العراق		الاسبوع التاسع
معرفة ما مدى تأثير التلوث الحربي والاشعاعي وانفجار الالغام.		الاسبوع العاشر
احداث مقابر الإبادة الجماعية المرتكبة من النظام البعثي في العراق		الاسبوع الحادي عشر
دراسة التصنيف الزمني لمقابر الابادة الجماعية في العراق للمدة 1993م-2003م		الاسبوع الثاني عشر
معرفة ما مدى تأثير التلوث الحربي والاشعاعي وانفجار الالغام.		الاسبوع الثالث عشر
امتحان يومي + عرض تقارير		الاسبوع الرابع عشر
الاسبوع التحضيري قبل الامتحان النهائي		الاسبوع الخامس عشر

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	جرائم نظام البعث في العراق	yes
Recommended Texts	– أيمن عبد العزيز سلامة ، المسؤولية الدولية عن ارتكاب جريمة الإبادة الجماعية ط 1 ، دار العلوم للنشر والتوزيع ، القاهرة ، 2006 . – حسن الخياط ، جغرافية أهوار ومستنقعات جنوبي العراق ، المطبعة العالمية في القاهرة ، 1975 .	No
Websites		

APPENDIX:

GRADING SCHEME				
مخطط الدرجات				
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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Biochemistry II	**Module Delivery**	
Module Type	CORE	☑Theory	
Module Code	APPA 2212	☑Lecture	
ECTS Credits	5	☑Tutorial	
SWL (hr/sem)	125	☑Seminar ☐Practical ☐Lab	

Module Level	2	**Semester of Delivery**	4
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	**e-mail**	samar.thamer@nahrainuniv.edu.iq
Peer Reviewer Name	Dr. Khawla A. Kasar	**e-mail**	khawla.kasar@nahrainuniv.edu.iq
Scientific Committee Approval Date	2025-01-18	**Version Number**	1

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

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	63	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	4
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	62	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	7
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

<table>
<tr><td colspan="6" align="center">**Module Evaluation**
تقييم المادة الدراسية</td></tr>
</table>

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	Continuous	LO #1, 2, 10 and 11
	Assignments	1	10% (10)	Continuous	LO #1, 3, 6,8, and 12
	Projects	1	10% (10)	Continuous	
	Report	1	10% (10)	Continuous	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	**Nucleic Acid and DNA** ↳ Structure ↳ Composition ↳ Functions of Nucleic Acids ↳ DNA Replication ↳ Transcription: Synthesis of RNA
Week 2	**Protein Synthesis** ↳ Translation: Protein Biosynthesis
Week 3	**Introduction to metabolism** ↳ Introduction ↳ Metabolic pathways ↳ Metabolic intermediates ↳ Homeostasis
Week 4	**Introduction to Metabolism** ↳ Generation of energy ↳ Degradation or catabolism of organic molecules ↳ Synthesis of cellular building blocks and precursors of macromolecules
Week 5	**Introduction to Metabolism** ↳ Storage of energy ↳ Excretion of potentially harmful substances ↳ Generation of regulatory substances ↳ General principles common to metabolic pathways
Week 6	**Enzymes** ↳ Properties of enzymes

	↓ The nature of enzymes ↓ Cofactors or coenzymes ↓ Types of enzymes
Week 7	**Enzymes** ↓ Factors affecting the enzyme activity ↓ Enzyme specificity
Week 8	**Enzymes** ↓ Mechanism of enzyme catalysis ↓ Reversible and irreversible reactions
Week 9	**Enzymes** ↓ Enzyme kinetics
Week 10	**Mid exam**
Week 11	**Enzymes** ↓ enzyme inhibition
Week 12	**Enzymes** ↓ Regulation of enzyme activity
Week 13	**Enzymes** ↓ Isoenzymes
Week 14	**Enzymes** ↓ Disease states associated with abnormal enzyme functioning
	Preparation of final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	↓ McKee, T., McKee, J. R. (2014). Biochemistry: The Molecular Basis of Life. United States: Oxford University Press. ↓ Rosenthal, M. D., Glew, R. H. (2011). Medical Biochemistry: Human Metabolism in Health and Disease. Germany: Wiley.	yes
Recommended Texts	Abali, E. E., Cline, S. D., Franklin, D. S., Viselli, S. M. (2021). Lippincott Illustrated Reviews: Biochemistry. (n.p.): Wolters Kluwer Health.	yes
Websites	https://www.enzyme-database.org/query.php?ec=7	

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.

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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		

Module Title	Mycology	Module Delivery	
Module Type	CORE	☒ Theory	
Module Code	APPA2214	☒ Lecture	
ECTS Credits	5	x Lab	
SWL (hr/sem)	125	☒ Tutorial ☐ Practical ☒ Seminar	

Module Level	2	Semester of Delivery	4
Administering Department	Applied Pathological Analysis	College	College of Science
Module Leader	Dr. Safa Mujahed Dr. Nawfal Haitham Shakir Dr. Thafar Najim	e-mail	Safa.mujahed@nahrainuniv.edu.iq nawfal.haitham@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph. D.
Module Tutor	Dr. Nawfal Haitham Shakir	e-mail	nawfal.haitham@nahrainuniv.edu.iq
Peer Reviewer Name	Dr. Safa Mujahed	e-mail	Safa.mujahed@nahrainuniv.edu.iq
Scientific Committee Approval Date	18/1/2025	Version Number	1.0
Laboratory Staff	Dr. Mustafa A. Hadid, MSc. Saddam Yahya Diwan, Dr. Evan H. Sulaiman, MSc. Mays Abdulhadi, MSc. Noor Dheyaa Jaafar, MSC. Zeena Murshed, MSc. Eman Adnan Abdulmajeed, MSc. Hadeer Faris		

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The course is designed to teach the students: typically revolve around equipping students or healthcare professionals with the knowledge and skills required to understand, diagnose, and manage fungal infections effectively. Below are some common aims of a medical mycology module: 1. Understanding Fungal Biology 2. To comprehensively understand the biology, taxonomy, and physiology of medically important fungi. 3. Fungal Pathogenesis 4. To explore the mechanisms of fungal pathogenicity and host-pathogen interactions. 5. To understand how fungi cause disease and adapt to the human host. 6. Clinical Significance 7. To identify the common and emerging fungal pathogens and their clinical significance in human health. 8. To differentiate between superficial, subcutaneous, and systemic fungal infections. 9. Diagnostic Techniques 10. To develop proficiency in diagnostic methods, including microscopic, culture-based, serological, and molecular techniques for fungal infections. 11. To gain knowledge of antifungal agents, their mechanisms of action, and resistance mechanisms. 12. Epidemiology and Public Health

	13. To understand the epidemiology of fungal infections, including their geographical distribution and risk factors. 14. To explore strategies for prevention, control, and outbreak management of fungal diseases.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Knowing the body molecules and the body systems is of paramount importance for several reasons: 1. Fungal Biology and Taxonomy 2. Pathogenesis and Host Response 3. Clinical Presentation 4. Cognitive/Intellectual Skills, Differential Diagnosis
Indicative Contents المحتويات الإرشادية	Introduction to Medical Mycology • Definition and scope of medical mycology • Overview of fungal biology and taxonomy • Importance of fungi in human health and disease
	Morphology and Classification of Fungi • Yeasts, molds, and dimorphic fungi • Structure and reproduction of fungi (sexual and asexual) • Classification based on morphology and phylogeny
	Pathogenesis of Fungal Infections • Mechanisms of fungal pathogenicity • Host immune response to fungal infections • Factors contributing to fungal diseases (e.g., immunosuppression, environmental exposure)
	Fungal Diseases (Mycoses) • Superficial Mycoses: Tinea (ringworm), dandruff, and skin infections • Cutaneous Mycoses: Dermatophytosis, onychomycosis • Subcutaneous Mycoses: Sporotrichosis, chromoblastomycosis • Systemic Mycoses: Histoplasmosis, coccidioidomycosis, blastomycosis, Para coccidioidomycosis • Opportunistic Mycoses: Candidiasis, aspergillosis, cryptococcosis, mucormycosis
	Fungal Diagnostics • Sample collection and preparation (skin scrapings, blood, tissue) • Microscopic examination (KOH mount, Gram stain, special stains) • Culture methods and identification (Sabouraud's agar, chromogenic media) • Molecular diagnostics (PCR, serology)
	Antifungal Agents and Therapy • Classes of antifungal drugs (e.g., azoles, polyenes, echinocandins) • Mechanisms of action and resistance • Antifungal susceptibility testing • Clinical management of fungal infections

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	
Week	**Material Covered**
Week 1	Introduction to the (Fungi) and Outline of the Major Taxa, Kingdom Myceteae (fungi)
Week 2	General characteristics of Fungi, Importance of Fungi, Classification of Fungi
Week 3	Structure of Fungi: Fungal thallus (Hypha), Yeast cells Dimorphic fungi
Week 4	Reproduction of Fungi, Sexual reproduction, Asexual reproduction (somatic or vegetative)
Week 5	Medical mycology, Mycoses, classification of mycosis according to the levels initially coloniz Medically important fungi: *Aspergillus* species, *Candida* species, *Cryptococcus* species, otl yeasts
Week 6	Medical mycology, Mycoses, classification of mycosis according to the levels initially colonized. Medically important fungi: Dematiaceous fungi, The dermatophytes, Endemic dimorphic fungi, Hyaline moulds, Mucoraceous moulds, *Pneumocystis jirovecii*
Week 7	Midterm - exam
Week8	Superficial mycoses
Week9	Cutaneous mycoses
Week 10	Subcutaneous mycoses
Week 11	Systemic mycoses due to primary pathogens
Week 12	Systemic mycoses due to opportunistic pathogens
Week13	Living mode of fungi, Specimen collection and transport, Cultivation of fungi, Environmental conditions suitable for fungi cultivation.
Week 14	Fungal culture media, Processing of fungal cultures, Direct Exam of Specimens
Week15	Final exam

Delivery Plan (Weekly Lab Syllabus)	
المنهاج الاسبوعي للمختبر	
Weeks	**Material Covered**
Week 1	Specimen collection and transport, isolation of fungi from different resources
Week 2	Fungal culture media
Week 3	Processing of fungal cultures
Week 4	Yeast identification methods
Week 5	Mold identification methods
Week 6	Safety in mycology laboratory
Week 7	Direct exam of specimens/ Potassium hydroxide prep/KOH
Week 8	Direct exam of specimens/ Calcofluor white stain
Week 9	Mid term exam
Week 10	Direct exam of specimens/ India ink – cryptococcus detection in CSF
Week 11	Examination of fungi in fixed tissue/ Periodic acid Schiff
Week 12	Examination of fungi in fixed tissue/ Mucicarmine [mucin] stain
Week 13	Examination of fungi in fixed tissue/ Hematoxylin and eosin stain
Week 14	Slides on / Medically important fungi: Aspergillus species, Candida species, Cryptococcus species, other yeasts, Dematiaceous fungi, The dermatophytes, Endemic dimorphic fungi, Hyaline moulds, Mucoraceous moulds, Pneumocystis jirovecii
Week 15	Final exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	Christopher C. Kibbler, Oxford Textbook of Medical Mycology, 2018, ISBN 978-0-19-875538-8	No
Recommended Texts	Textbook of Medical Mycology, Hamzia Ali Ajah ,2018	No
Websites	https://academic.oup.com/book/41270	

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.

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MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	Biostatistics	**Module Delivery**	
Module Type	Support	✓ **Theory** ✓ **Lecture** **Lab** **Tutorial** ✓ **Practical** ✓ **Seminar**	
Module Code	CRBIOSTA		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	2	**Semester of Delivery**	4
Administering Department	Applied Pathological Analysis	**College**	College of Science
Module Leader	Eman Khaled Khalaf	**e-mail**	eman.khalid@nahrainuniv.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	Master's
Module Tutor	Eman Khaled Khalaf	**e-mail**	eman.khalid@nahrainuniv.edu.iq
Peer Reviewer Name	Eman Khaled Khalaf	**e-mail**	eman.khalid@nahrainuniv.edu.iq
Scientific Committee Approval Date	18-1-2025	**Version Number**	1.0

Relation with others Modu				
العلاقة مع المواد الدراسية الأخرى				
Prerequisite module	None	Semester	None
Co-requisites module	None	Semester	None

Module Aims, Learning Outcomes and Indicative Contents
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

Module Aims أهداف المادة الدراسية	The course aims to provide the student with knowledge and understanding of biostatistics, and to understand how to find the mean, median and mode, and to know how to find frequency tables and standard deviations and in what field statistics are introduced to a range of statistical tools relevant to scientists. Specific topics include an overview of statistical distributions, significance testing, uncertainty determination, linear regression and experimental design. Particular emphasis is placed on the application of statistics to quality control and practical experience in the application of widely used statistical features. Teaching methods will be a combination of lectures, self-study and any combination of discussion, case study and problem-solving exercises
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Describe the basic statistical terms relevant to the field of analytical sciences. Identify the types of statistics 2- Identify how statistics is applied and in which field it is used 3- Know the application of statistics in our daily lives and how to draw functions 4- Display data graphically and summarize them numerically using appropriate tables, graphs, and measures of center, spread, and position. 5- Conduct interventions on population parameters using sample statistics using confidence interval estimates and statistical hypothesis tests. 6- Describe the application of statistics to sampling, quality control, validation of analytical method, and experimental design. 7- Use an appropriate method to analyze relationships between variables in a data set

Indicative Contents **الإرشادية المحتويات**	1-Describe basic statistical terms relevant to the field of analytical science Introduction to statistical terms Population and samples Statistical description of data Display data graphically and summarize them numerically using . tables, graphs, and measures of center, spread, and position2-appropriate Graphical representation of data including frequency tables and graphs • 3-Explain and apply the concepts of basic statistical distributions . Normal distribution • Correlation • T-distribution and T-test • Z-distribution and Z-test • Introduction to hypothesis testing • Probability theory • Moments • Finding measures of central tendency • •

Learning and Teaching Strategies		
استراتيجيات التعلم والتعليم		
Strategies	The teaching methods used will be a combination of online lectures, self-study, online practical workshops and any combination of discussion, case study and problem-solving exercises. The practical component will be delivered separately to students in their different study groups (Biomedical Sciences/Medical Biotechnology, Forensic Sciences, Pharmaceutical Sciences) so that the examples used in the practical application of statistics can be tailored to suit their field of study.	
Student Workload (SWL)		
الحمل الدراسي للطالب		
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	33	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	67	Unstructured SWL (h/w)الحمل الدراسي غير المنتظم للطالب أسبوعيا	11
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	100		

Module Evaluation تقييم المادة الدراسي					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	1	10% (10)	continouse	LO #1, 2, and 3
	Assignments	1	10% (10)	continouse	LO # 4 and 6
	Seminar	1	10% (10)	continuous	
	Report	1	10% (10)	continouse	LO # 5 and 7
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 النظري	
	Material Covered
Week 1	• Introduction to BioStatistical and some Basic concepts
Week 2	• Methodes of presentation of data
Week 3	• Measures of Central Tendency , Arithmetic Mean, mode, Median.
Week 4	• Measures of Variability, The Range, Variance and Standard Deviation
Week 5	• Sample of randome sampling.
Week 6	• Probability theory.
Week 7	• Comulative distribution.
Week 8	•The Normal Distribution
Week 9	• the one exam
Week 10	• moment , skewness and kurtosis.
Week 11	• Introduction to Hypothesis Testing

Week 12	• Z- test for the mean
Week 13	• T - test for the mean
Week 14	• Regression
Week 15	• the final Exam

Learning and Teaching Resources **مصادر التعلم والتدريس**		
	Text	**Available in the Library?**
Required Texts	• Modern Mathematical Statistics with Applications, Jay L. Devore, Kenneth N. Berk, Springer, 2012.	كلا
Recommended Texts	• Mathematical Statistics with Applications", 7th edition, by Wackerly, Mendenhall & Scheaffer	كلا
book	• https://en.wikipedia.org/wiki/Biostatistics	
Websites	• Introduction to statistics, by Ronald E. Walpole. • Mathematical Statistics with Applications, Dennis D. Wackerly, William Mendenhall III, Richard L. Scheaffer, Thomson Brooks, 2008.	

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
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	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks 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.

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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

<table>
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معلومات المادة الدراسية</td></tr>
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<tr>
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<tr>
<td>Administering Department</td>
<td>Applied Pathological Analysis</td>
<td>College</td>
<td>College of Science</td>
</tr>
<tr>
<td>Module Leader</td>
<td>Wisam Kadhum H- Al-Hashemi</td>
<td>e-mail</td>
<td>Wisam.kadhim@nahrainuniv.edu.iq</td>
</tr>
<tr>
<td>Module Leader's Acad. Title</td>
<td>Assistance Professor</td>
<td>Module Leader's Qualification</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Module Tutor</td>
<td>M.Sc. Adhraa Abdulameer</td>
<td>e-mail</td>
<td>athraa.a.s@nahrainuniv.edu.iq</td>
</tr>
<tr>
<td>Peer Reviewer Name</td>
<td>Khawla A. Kasar</td>
<td>e-mail</td>
<td>khawla.kasar@nahrainuniv.edu.iq</td>
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<td>Review Committee Approval</td>
<td>18\1\2025</td>
<td>Version Number</td>
<td>1</td>
</tr>
<tr>
<td>Lab. Staff</td>
<td colspan="3">Dr. Samar T. Hameed, MSc. Dania Emad Ibrahim, MSc. Huda Ghazi, MSc. Ahlam Abdulla Alwan, MSc. Zina Jabbar Ghaib Hassan, MSc. Ahmed Abd Temur, MSc. Amer Adnan, Dr. Sarah A. Mahdi, M.Sc. Adhraa Abdulameer, Msc. Omar Khalid.</td>
</tr>
</table>

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	- To provide students with a comprehensive understanding of the principles and applications of bioanalytical techniques in life sciences. - To develop practical skills in using advanced instrumentation and methodologies for analyzing biological molecules. - To prepare students for research and industry roles by fostering critical thinking and problem-solving skills in bioanalytical science.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	By the end of the module, students will be able to: **Knowledge**: 1. Explain the theoretical principles behind key bioanalytical techniques, including spectroscopy, chromatography, electrophoresis, and mass spectrometry. 2. Describe the applications of bioanalytical techniques in life sciences, such as protein analysis, metabolite profiling, and structural biology. **Skills**: 3. Operate and maintain common laboratory instruments, such as spectrophotometers, centrifuges, and pH meters. 4. Perform experiments using bioanalytical techniques, including sample preparation, data collection, and analysis. **Competencies**: 5. Critically evaluate experimental data and troubleshoot common issues in bioanalytical workflows. 6. Design and execute a research project using appropriate bioanalytical techniques to address a scientific question.
Indicative Contents المحتويات الإرشادية	The module will cover the following topics: 1. **Introduction to Bioanalytical Techniques**: o Overview of techniques and their applications in life sciences. o Importance of accuracy, precision, and reproducibility in bioanalytical science.

2. **Spectroscopic Techniques**:
   - o UV-Vis, fluorescence, and infrared spectroscopy.
   - o Applications in protein quantification and structural analysis.
3. **Chromatography**:
   - o Principles of HPLC, GC, and TLC.
   - o Separation and identification of biomolecules.
4. **Electrophoresis**:
   - o SDS-PAGE and agarose gel electrophoresis.
   - o Applications in protein and nucleic acid analysis.
5. **Mass Spectrometry**:
   - o MALDI-TOF and ESI-MS.
   - o Applications in proteomics and metabolomics.
6. **Centrifugation**:
   - o Differential and density gradient centrifugation.
   - o Isolation of cellular organelles and macromolecules.
7. **Immunological Techniques**:
   - o ELISA, Western blotting, and immunofluorescence.
   - o Applications in diagnostics and research.
8. **Microscopy**:
   - o Light, fluorescence, and electron microscopy.
   - o Applications in cell biology and pathology.
9. **Electrochemical Techniques**:
   - o Potentiometry and ion-selective electrodes.
   - o Applications in clinical and environmental analysis.
10. **Biosensors and Bioassays**:
    - o Principles of biosensors and their applications in diagnostics.
    - o Enzyme kinetics and assays.
11. **Emerging Techniques**:
    - o Single-cell analysis, nanotechnology, and advanced imaging.
    - o Future trends in bioanalytical science.

Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

Strategies	1- **Active Participation:** Engage in class discussions, ask questions, and contribute to group activities. 2- **Hands-on Practice:** Maximize learning in lab sessions by actively participating in experiments and data analysis. 3- **Problem-Solving:** Practice solving problems related to bioanalytical techniques, focusing on understanding the underlying principles. 4- **Critical Thinking:** Evaluate data critically, identify potential sources of error, and interpret results in the context of the experiment. 5- **Collaboration:** Work effectively with peers in group projects and lab activities. 6- **Independent Learning:** Supplement classroom learning with

independent reading, research, and practice.

7- **Effective Communication:** Clearly communicate experimental results and interpretations in lab reports and presentations.

8- **General Teaching Strategies (for instructors):**

9- **Varied Instruction:** Use a mix of lectures, demonstrations, hands-on labs, discussions, and problem-solving activities.

10- **Real-World Relevance:** Connect bioanalytical techniques to real-world applications in life sciences.

11- **Clear Explanations:** Explain complex concepts in a clear and concise manner, using visual aids and examples.

12- **Hands-on Learning:** Provide ample opportunities for students to develop practical skills in the lab.

13- **Data Analysis Focus:** Emphasize data analysis and interpretation, providing students with the necessary tools and skills.

14- **Active Learning Techniques:** Incorporate activities like think-pair-share, small group discussions, and case studies.

15- **Feedback and Assessment:** Provide regular feedback on student progress and use a variety of assessment methods.

16- **Technology Integration:** Utilize online resources, simulations, and software tools to enhance learning.

17- **Student-Centered Approach:** Create a learning environment that is supportive and encourages student participation.

18- **Flexibility and Adaptability:** Be prepared to adjust teaching strategies based on student needs and feedback.

19- **Key Areas of Focus (integrated into both learning and teaching):**

20- **Fundamental Principles:** Ensure students have a solid understanding of the basic principles underlying each technique.

21- **Practical Skills:** Develop proficiency in performing common bioanalytical techniques.

22- **Data Interpretation:** Gain skills in analyzing and interpreting data generated from bioanalytical experiments.

23- **Troubleshooting:** Learn to identify and troubleshoot common problems encountered in the lab.

24- **Applications:** Understand the applications of bioanalytical techniques in various life science fields.

25- **Safety:** Emphasize lab safety and proper handling of biological materials and equipment.

26- **Ethical Considerations:** Discuss ethical considerations related to bioanalytical research.

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	Introduction to Bioanalytical Techniques
Week 2	Spectroscopic Techniques 1
Week 3	Spectroscopic Techniques 2 UV-VIS
Week 4	Spectroscopic Techniques 3 Atomic absorption and emmission
Week 5	Chromatography Techniques
Week 6	Electrophoresis
Week 7	Centrifugation Techniques
Week 8	Mid exam

Week 9	Protein Purification Techniques
Week 10	The Organic Mechanisms of the Coenzymes
Week 11	Enzyme Kinetics and Assays
Week 12	Immunological Techniques
Week 13	Advanced immunoassyas 1
Week 14	Biosensors and Bioassays
Week 15	Preparatory Week
Week 16	Final Exam

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab safety, instrumentation, and introduction to lab protocols.
Week 2	UV-Vis spectroscopy for determination of maximum wavelength
Week 3	UV-Vis spectroscopy for determination of unknown concentration
Week 4	Thin-layer chromatography (TLC) for separation of amino acids.
Week 5	SDS-PAGE for protein separation (electrophoresis)
Week 6	Isolation of cellular organelles using differential centrifugation.
Week 7	ELISA for antigen detection
Week 8	Western Immunoblotting
Week 9	Michaelis-Menten kinetics using a spectrophotometric assay
Week 10	Measurement of pH using a pH meter and ion concentration using ISEs
Week 11	Glucose biosensor demonstration.

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	4th Edition Analytical Chemistry for Technicians By John Kenkel Copyright 2014	no
Recommended Texts	**BIOANALYTICAL CHEMISTRY** by Andreas Manz (Author), Nicole Pamme (Author), Dimitri Iossifidis (Author)	
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

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	Human Physiology	**Module Delivery**
Module Type	CORE	☒Theory ☒Lecture ☒Lab ☒Tutorial ☒Practical ☒Seminar
Module Code	APPA2213	
ECTS Credits	5	
SWL (hr/sem)	125	

Module Level	2	**Semester of Delivery**	4

Administering Department	Applied Pathological Analysis	**College**	College of Science	
Module Leader	Dr. Evan H. Sulaiman Dr. Wael Adil Obaid Dr. Shaima Yousif	**e-mail**	evan.hameed@nahrainuniv.edu.iq Waeladil@nahrainuniv.edu.iq	
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	Ph. D.	
Module Tutor	Dr. Wael Adil Obaid	**e-mail**	Waeladil@nahrainuniv.edu.iq	
Peer Reviewer Name	Dr. Evan H. Sulaiman	**e-mail**	evan.hameed@nahrainuniv.edu.iq	
Scientific Committee Approval Date	18/1/2025	**Version Number**	1.0	
Lab. Staff	Dr. Zainab Sabeeh, MSc. Ahmed Jabbar, MSC. Zeena Murshed, MSc. Eman Adnan Abdulmajeed, MSc. Hadeer Faris, Dr. Ruaa Hameed Abdulridha, MSc. Noor Dheyaa Jaafar.			

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

Module Aims, Learning Outcomes and Indicative Contents	
أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهذاف انمادج انذراسيح	The course aims to teach students the following: Human physiology is the study of the functions of organs through their biochemical and physical (mechanical) processes of the human body's organs and cells. The main goal of physiology is to study the organs of a living organism and the systems that make them up. Much information about the functions of human organs is obtained through experiments conducted on animals.
Module Learning Outcomes مخرجاخ انتعهم نهمادج انذراسيح	1. learn the structure and physiology of the various body systems: respiratory, urinary, nervous, muscular, etc., in addition to thermal balance, the state of internal homeostasis of the body, and other physiological matters. 2- Developing the student's ability to draw blood samples, in addition to developing the student's ability to dissect some laboratory animals. 3- Identifying the methods of conducting various analyses that reflect the health of the various body systems. 4- learn the correct values for all physiological variables in the body
Indicative Contents انمحتياخ الإرشاديح	General Introduction to Physiology Cell Physiology: General Functions, Cell Membrane Transport General Idea about Body fluids: Types, Composition, and Functions. Unit of Measurement, Conversion and Conversion factor.
	Blood: Composition, Specific Functions of each Compartment.
	Plasma and Serum Differences and Separation. RBCs: Definition, Structure, and Normal Value; Hb Definition, Structure, and Normal Value; Blood Groups. Erythropoiesis, Homeostasis, Death and Disposal. White Blood Cells: Classification, Specific Function, Normal Value. Platelet: Definition, Function, Normal Value, Thrombopoiesis and Hemostasis

	Heart Physiology: Conductive System, Cardiac Output (Mechanics and Control) and Factor Affecting. Vascular (Blood Vessels) Physiology: Mechanics and Control; Blood Pressure; and Factor Affecting.
	Lymphatic Physiology: Organs: Composition, Function of Each part. Lymph: Structure, Hemodynamic and Factor Affecting their Movement.
	Respiratory Physiology: Parts and Specific Functions; Ventilation: Mechanics and Control. External Respiration, Gas Blood Transport, Internal Respiration: Mechanics, Control and Factor affecting. Lung Volumes: Normal Values and Factor Affecting; Conscious and Un Conscious Control of Respiration. Role of Pons and Medulla in Respiratory Transient.
	Acid-Base Balance: Definition, Buffer Systems, and Role of Body Systems In the Regulation.
	Digestive Physiology: GIT: Part General Function, Food Movement, and Control. Swallowing Reflex Digestive Physiology: GIT Chemical Digestion, Absorption, and Control. Defecation Reflex Digestive Physiology: Accessory Organs: Secretion and Their Role in Digestion. Secretion Control.
	Urinary Physiology: General Functions of US. Urine: Definition and Normal Constitute. Physical and Chemical Property of Urine. Urinary Tract: Parts and Function. Urine Hemodynamic and Control. Normal Urine Daily Volume and Factor Affecting.
	Role of Kidney in Urine Formation and Maintenance of Body Fluids and The Role In Acid-Base Balance.
	Muscles Physiology: Types and Functions. Generation of Action Potential, Contraction, and Sliding-Filament theory.
	Nervous Physiology: Neuroglia: Definition, Types, and Function. Neurons: Definition, Types, and Function.
	Generation of Action Potential. Neuronal Conduction: Types and Speed. Synapsis: Types, and Function.
	Endocrine Physiology: Endocrine Glands Types and Secretion. Hormone: Types, Normal Value, Function and Control of Secretion
	Exam

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	- Encourage students to take structured notes during lectures. - - Provide practical questions and problem-solving exercises. - - Actively participate in group discussions and collaborative activities. - - Use textbooks, online resources, and supplementary materials to enhance learning. - - Provide constructive feedback on assignments and assessments. - - Review helps students understand their strengths and areas for improvement. Teaching Strategies: - Encourage students to actively engage with the material through group discussions and activities to promote deeper understanding. - Provide 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	94	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	6
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	31	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

<table>
<tr><td colspan="6" align="center">Module Evaluation
تقييم المادة الدراسية</td></tr>
<tr><td></td><td></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>2</td><td>10% (10)</td><td>all</td><td>ALL</td></tr>
<tr><td>Assignments</td><td>2</td><td>5% (10)</td><td>3.11</td><td>ALL</td></tr>
<tr><td>Projects / Lab.</td><td>0</td><td>15% (10)</td><td>Continues</td><td>ALL</td></tr>
<tr><td>Seminar</td><td>1</td><td>10% (10)</td><td>Continues</td><td>ALL</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>1 hr</td><td>10% (10)</td><td>7</td><td>ALL</td></tr>
<tr><td>Final Exam</td><td>3hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">Total assessment</td><td></td><td>100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><td colspan="2" align="center">Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري</td></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>Week 1</td><td>General Introduction to Physiology Cell Physiology: General Functions, Cell Membrane Transport
General Idea about Body fluids: Types, Composition, and Functions. Unit of Measurement, Conversion and Conversion factor.</td></tr>
<tr><td>Week 2</td><td>Blood: Composition, Specific Functions of each Compartment Plasma and Serum Differences and Separation.
RBCs: Definition, Structure, and Normal Value; Hb Definition, Structure, and Normal Value; Blood Groups.
Erythropoiesis, Homeostasis, Death and Disposal.
White Blood Cells: Classification, Specific Function, Normal Value.
Platelet: Definition, Function, Normal Value, Thrombopoiesis and Hemostasis</td></tr>
<tr><td>Week 3</td><td>Heart Physiology: Conductive System, Cardiac Output (Mechanics and Control) and Factor Affecting. Vascular (Blood Vessels) Physiology: Mechanics and Control; Blood Pressure; and Factor Affecting.</td></tr>
<tr><td>Week 4</td><td>Lymphatic Physiology: Organs: Composition, Function of Each part. Lymph:
Structure, Hemodynamic and Factor Affecting their Movement.</td></tr>
<tr><td>Week 5</td><td>Respiratory Physiology: Parts and Specific Functions; Ventilation: Mechanics and Control.
External Respiration, Gas Blood Transport, Internal Respiration: Mechanics,</td></tr>
</table>

	Control and Factor affecting. Lung Volumes: Normal Values and Factor Affecting; Conscious and Un Conscious Control of Respiration. Role of Pons and Medulla in Respiratory Transient.
Week 6	Acid-Base Balance: Definition, Buffer Systems, and Role of Body Systems In theRegulation.
Week7	Digestive Physiology: GIT: Part General Function, Food Movement, and Control. Swallowing Reflex Digestive Physiology: GIT Chemical Digestion, Absorption, and Control. Defecation Reflex Digestive Physiology: Accessory Organs: Secretion and Their Role in Digestion. Secretion Control.
Week8	Mid Exam
Week9	Urinary Physiology: General Functions of US. Urine: Definition and Normal Constitute. Physical and Chemical Property of Urine. Urinary Tract: Parts and Function. Urine Hemodynamic and Control. Normal Urine Daily Volume and Factor Affecting.
Week 10	Role of Kidney in Urine Formation and Maintenance of Body Fluids and The Role In Acid-Base Balance.
Week11	Muscles Physiology: Types and Functions. Generation of Action Potential, Contraction, and Sliding-Filament theory.
Week12	Nervous Physiology: Neuroglia: Definition, Types, and Function. Neurons: Definition, Types, and Function.
Week13	Generation of Action Potential. Neuronal Conduction: Types and Speed. Synapsis: Types, and Function.
Week14	Endocrine Physiology: Endocrine Glands Types and Secretion. Hormone: Types, Normal Value, Function and Control of Secretion
Week 15	Exam

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
Weeks	**Material Covered**
Week 1	Introduction: Characteristics of good technician. How To avoid contamination of Specimen and Technician. Specimen: Type, Collection, and Preparation. Specimen identification Reports: Types and righting Basic steps for drawing a blood specimen by venipuncture. Complications of

	venipuncture. Blood collection by skin punctures (Capillary Blood). Types of Syringes used in blood collection. Patient care after blood collection. Repeat: Blood drawing. Blood sample Hemolysis: Reasons and how to avoid. Blood Coagulants: Types and Uses. (EDTA, Citrate, OxalBlood Coagulants: Types and Uses. (EDTA, Citrate, Oxalate, Heparin, sodium fluoride).
Week 2	Blood separation to Cells, plasma, and serum. Transport, and storage blood sample PCV, Clotting time, Bleeding time and ESR.
Week3	Blood Smear: Preparation and Importance.
Week4	Complete Blood Counts: RBCs. Manual and Electronic Method. Determination of Hemoglobin: Electronic Method
Week 5	Complete Blood Counts: WBCs. Manual and Electronic Method. Determination of Hemoglobin: Cyanmethemoglobin Method
Week 6	Urine Sample: Importance, Method of Collection, Preparation, Transport and Storage Physical Examination of Urine Sample. Microscopic Examination of Urine: The identification of Epithelial Cells, Blood Cells, crystals, casts, Bacteria, Yeast, Mucus, Casts,……. Etc. Chemical Examination of Urine
Week 7	Semen Analysis: Type of Collection & Physical Examination Semen Analysis: Cell Counting Technique. Semen Analysis: Motility, Viability, &Morphology.
Week 8	Exam

	Text	Available in the Library?
Learning and Teaching Resources مصادر التعلم والتدريس		
Required Texts		yes
Recommended Texts
Guyton and Hall Textbook of Medical Physiolog	
Websites	https://repository.poltekkes-kaltim.ac.id/1147/1/Guyton%20and%20Hall%20Textbook%20of%20Medical%20Phys	

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

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MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية		
Module Title	Arabic Language2	**Module Delivery**
Module Type	**Basic**	☒Theory ☒Lecture ☐Lab ☒Tutorial ☐Practical ☒Seminar
Module Code	URARA	
ECTS Credits	**2**	
SWL (hr/sem)	50	

Module Level	2	**Semester of Delivery**	4
Administering Department	Applied Pathological Analysis	**College**	College of Science
Module Leader	Dr. Rana Majed Hamed	**e-mail**	Rana.majid@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	**Module Leader's Qualification**	PhD
Module Tutor	None	**e-mail**	None
Peer Reviewer Name	Dr. Fadhel Subhi Fadhel	**e-mail**	fadhel.subhi@nahrainuniv.edu.iq
Review Committee Approval	18\1\2025	**Version Number**	1

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	1. تغطية اساسيات اللغة العربية 2. معرفة اقسام اللغة العربية 3. تطوير مهارات القراءة والكتابة والاستماع 4. تنمية الثقافة اللغوية بفهم اللغة العربية بلغة ذات تاريخ وثقافة 5. تعلم مهارات الحديث والتحدث للتواصل بفعالية مع الاخرين
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	المعرفة والفهم حيث يجب ان يكون الخريج قادر على معرفة وفهم مايأتي: 1. القدرة على التحدث والكتابة باللغة العربية بطلاقة وبمستوى متقدم 2. فهم الثقافة العربية والتقاليد والقيم 3. قدرة الطالب على المشاركة في المجتمعات والندوات سواء في المجال الاكاديمي او المهني او الاجتماعي 4. قدرة الطالب على قراءة وتحليل النصوص الادبية والاكاديمية باللغة العربية ليسهل عليهم اجراء البحوث وكتابة الاوراق البحثية بشكل مناسب 5. الاستعداد للحياة المهنية من خلال قدرة الطالب على استخدام اللغة العربية بالترجمة والتعليم والعلاقات العامة او اي مجال اخر يتطلب التواصل باللغة العربية
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	

Strategies	اسلوب المحاضرات والتطبيق بالامثلة.1 نظام الواجبات البيتية والسمنار.2

Student Workload (SWL) الحمل الدراسي للطالب			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	35	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	15	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	50		

Module Evaluation تقييم المادة الدراسية					
As		**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	
Week	**Material Covered**
Week 1	مدخل الكلام ومايتألف منه

Week 2	اقسام الكلمة وعلامات كل قسم
Week 3	انواع الجملة وعلامات الاعراب
Week 4	المبني والمعرب
Week 5	المبتدأ والخبر وانواع الخبر وتقديمه
Week 6	اختبار ١٠
Week 7	قصيدة للشاعر ابي الطيب المتنبي
Week 8	النواسخ (كان واخواتها)
Week 9	إن واخواتها
Week 10	تكملة الموضوع السابق
Week 11	علامات التنقيط مع رسم الهمزة
Week 12	اختبار ١٥
Week 13	العدد
Week 14	التوابع (صفة-العطف-التوكيد-البدل)
Week 15	الاسبوع التحضيري
Week 16	الامتحان النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts	شرح ابن عقيل	
Recommended Texts	الادب الجاهلي/شوقي ضيف البيان والتبين/الجاحظ	
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

MODULE DESCRIPTOR FORM
نموذج وصف المادة الدراسية

Module Information		
معلومات المادة الدراسية		
Module Title	Computer II	**Module Delivery**
Module Type	Basic	☒ Theory ☐ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	URCOM2	
ECTS Credits	3	
SWL (hr/sem)	75	
Module Level	2	**Semester of Delivery**	4
Administering Department	APPLIED PATHOLOGICAL ANALYSIS	**College**	College of Sciences
Module Leader	Basheer Nahidh AbdulAmeer	**e-mail**	Basheer.Ameen@nahrainuniv.edu.iq
Module Leader's Acad. Title	Assistant Lecturer	**Module Leader's Qualification**	M.Sc.
Module Tutor	None	**e-mail**	None
Peer Reviewer Name	None	**e-mail**	None
Scientific Committee Approval Date	18/1/2025	**Version Number**	1
Lab. Staff	M.Sc. Saif Mohammed, M.Sc. Mohammed Majed, M.Sc. Rasha Shahier		

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	1. Network security 2. Computer Troubleshooting 3. E-commerce 4. Artificial Intelligent (AI) 5. Applications and Tools in AI. 6. AI in Modern Smartphones 7. AI and Society 8. EthicsIn AI 9. The AI Future
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. You will be able to understand network and its types 2. You will be able to Identify and understand the important of network security 3. Understanding the E-commerce Application and how use them 4. You will be able to solve common HW and SW problems in computer 5. You will be able to explain the Fundamentals of AI 6. You will be able to describe AI Applications and Real-World Problem Solving. 7. You will be able to use the AI application in smartphones 8. You will be able to Understand and Discuss the Ethics and Social Implications of AI 9. You will be able to understand what is the AI future. 10. You will be able to understand and use methos of digital image processing in MATLAB as practical application
Indicative Contents المحتويات الإرشادية	Introduction to Networking and Network Security Introduction to E-commerce(Types of E-commerce, E-commerce marketplaces and websites and online payment systems) Hardware Troubleshooting, Software Troubleshooting and System Maintenance and Preventative Care**.** Introduction to Artificial Intelligence (History and Evolution, Types of AI, and Applications of AI) AI Ethics and Social Implications AI in Real-World Applications AI Tools Digital Image Processing

Learning and Teaching Strategies	
استراتيجيات التعلم والتعليم	
Strategies	The main strategy that will be adopted in delivering this module is by explaining lectures in an interactive way by letting the students to participate in the presenting through questions and answers while at the same time refining and expanding their critical thinking skills. This will be achieved through classes and labs.

<table>
<tr><th colspan="4">Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا</th></tr>
<tr><td>Structured SWL (h/sem)
الحمل الدراسي المنتظم للطالب خلال الفصل</td><td>48</td><td>Structured SWL (h/w)
الحمل الدراسي المنتظم للطالب أسبوعيا</td><td>3.2</td></tr>
<tr><td>Unstructured SWL (h/sem)
الحمل الدراسي غير المنتظم للطالب خلال الفصل</td><td>27</td><td>Unstructured SWL (h/w)
الحمل الدراسي غير المنتظم للطالب أسبوعيا</td><td>1.8</td></tr>
<tr><td>Total SWL (h/sem)
الحمل الدراسي الكلي للطالب خلال الفصل</td><td>75</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="6">Module Evaluation
تقييم المادة الدراسية</th></tr>
<tr><td></td><td></td><td>Time/Number</td><td>Weight (Marks)</td><td>Week Due</td><td>Relevant Learning Outcome</td></tr>
<tr><td rowspan="4">Formative assessment</td><td>Quizzes</td><td>4</td><td>10% (10)</td><td>Continuous</td><td>All</td></tr>
<tr><td>Assignments</td><td>3</td><td>10% (10)</td><td>Continuous</td><td>All</td></tr>
<tr><td>Report</td><td>1</td><td>10% (10)</td><td>Continuous</td><td></td></tr>
<tr><td>Lab</td><td>2</td><td>10%(10)</td><td>8,14</td><td>All</td></tr>
<tr><td rowspan="2">Summative assessment</td><td>Midterm Exam</td><td>2hr</td><td>10% (10)</td><td>7,15</td><td>All</td></tr>
<tr><td>Final Exam</td><td>3hr</td><td>50% (50)</td><td>16</td><td>All</td></tr>
<tr><td colspan="2">Total assessment</td><td colspan="2">100% (100 Marks)</td><td></td><td></td></tr>
</table>

<table>
<tr><th colspan="2">Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري</th></tr>
<tr><td></td><td>Material Covered</td></tr>
<tr><td>Week 1</td><td>Security and Networking</td></tr>
<tr><td>Week 2</td><td>E-Commerce</td></tr>
<tr><td>Week 3</td><td>Computer troubleshooting</td></tr>
<tr><td>Week 4</td><td>Computer troubleshooting (cont..)</td></tr>
<tr><td>Week 5</td><td>Introduction to AI (definition and evolution of AI)</td></tr>
<tr><td>Week 6</td><td>Introduction to AI (Key characteristics and Benefits of AI)</td></tr>
</table>

Week 7	**Mid-term Exam 1**
Week 8	The Role of AI in Modern Smartphones (AI mobile technologies and virtual assistants)
Week 9	The Role of AI in Modern Smartphones (Adaptive learning and real time translation services)
Week 10	Applications and AI tools (overview of AI applications)
Week 11	Applications and AI tools (Transportation, marketing, advertising, robotics and automation technologies)
Week 12	AI and Society
Week 13	Ethics In AI
Week 14	The future of AI
Week 15	**Mid-term Exam 2**

Delivery Plan (Weekly Lab. Syllabus)	
المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Introduction to Image Processing (Working with Image Types in MATLAB)
Week 2	Lab 2: Image Representation (read, display, save and information of an image)
Week 3	Lab 3: Display Array Data as Image
Week 4	Lab 4:Display Array Data as Image (Cont.)
Week 5	Lab 5: Spatial Transformations (crop, resize and rotate)
Week 6	Lab 6: Image Types and Type Conversions
Week 7	Lab 7: Image Types and Type Conversions (Cont.)
Week 8	**Practical Exam 1**
Week 9	Lab 8: Thresholding and Histogram tools
Week 10	Lab 9: Image Arithmetic
Week 11	Lab 10: Image Arithmetic (Cont.)
Week 12	Lab 11: Analyzing and Enhancing image
Week 13	Lab 12: Image registration
Week 14	**Practical Exam 2**
Teaching Staff	

<table>
<tr><td colspan="3" align="center">**Learning and Teaching Resources**
مصادر التعلم والتدريس</td></tr>
</table>

	Text	Available in the Library?
Required Texts		
Recommended Texts	• Introduction to Artificial Intelligence (AI) by Ahmed Banafa 2024 • Cambridge IGCSE Information and Communication Technology (3rd. Ed.) by David Watson, Graham Brown 2021 • Technology In Action Complete (16th. Ed.)by Alan Evans, Mary Anne Poatsy, Kendall Martin 2020 • Fundamentals of Digital Image Processing: A Practical Approach with Examples in MATLAB by Chris Solomon 2011	No
Websites		

<table>
<tr><td colspan="5" align="center">**Grading Scheme**
مخطط الدرجات</td></tr>
</table>

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