

Academic Program Description Form

University Name: Al-Nahrain

Faculty/Institute: College of Sciences

Scientific Department: Biology

Academic or Professional Program Name: Biology

Final Certificate Name: Biology

Academic System: Bologna

Description Preparation Date:

File Completion Date:

Signature: 

Head of Department Name:

Dr. Orobba Nodhin Harbi

Date: 27.04.2025

Signature: 

Scientific Associate Name:

Manaf Adnan

Date: 27.4.2025

The file is checked by: Dr. Orobba Nodhin Harbi

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 27.04.2025

Signature: 



Approval of the Dean 



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



قسم علوم الحياة هو أحد التخصصات العلمية الذي يركز على دراسة الكائنات الحية والعمليات الحيوية المختلفة. هذا القسم يجمع بين العديد من الفروع المتنوعة مثل علم الأحياء، علم النبات، علم الحيوان، علم الوراثة، علم الأحياء الدقيقة، وعلم البيئة. يتميز القسم بعدة خواص، منها:

1. دراسة شاملة للكائنات الحية:

يركز على فهم الكائنات الحية وذلك من خلال دراسة مستوى الخلية، الأنسجة، الأعضاء، والجسم بصورة عامة.

يشمل دراسة التنوع البيولوجي والعلاقات بين الكائنات الحية وبيئاتها.

2. التخصصات المتنوعة:

- علم الأحياء الدقيقة (الميكروبات والبكتيريا).

- علم النبات (دراسة النباتات فوائدها وخصائصها).

- علم الحيوان (دراسة الحيوانات وسلوكها).

- علم البيئة (العلاقات البيئية وديناميكيتها).

3. تطبيقات عملية:

- الطب والصحة العامة: يساعد في فهم الأمراض واكتشاف علاجات جديدة.

- الزراعة: تحسين المحاصيل الزراعية ومكافحة الآفات.

- الصناعة: تطبيقات في التكنولوجيا الحيوية مثل إنتاج الأدوية واللقاحات.

- حماية البيئة: دراسة التغيرات البيئية وتأثيرها على الكائنات الحية.

4. مهارات علمية:

- تطوير المهارات التحليلية والمخبرية مثل التحليل المجهرى وزراعة الخلايا.

- القدرة على العمل في مجالات متعددة مثل البحث العلمي والتعليم والصناعة.

5. التوجه البحثي:

يتيح فرصة للعمل البحثي في مجالات مثل الوراثة، التكنولوجيا الحيوية وعلم الاحياء الجزيئي.

6. ارتباطه بالتحديات الحديثة:

يساهم في ايجاد حلول لتحديات كرى مثل التغير المناخي، الامن الغذائي والابوة.

رؤية القسم:

ان يكون قسم علوم الحياة رائدا في تحقيق الاستدامة عن طريق رفد المجتمع بخريجين متخصصين في مجال علوم الحياة ودعم البحث العلمي في العراق والعالم.

رسالة القسم:

يقدم قسم علوم الحياة برامج دراسية متميزة بمعايير عالمية تساندها منظومة البحث العلمي لتزويد الطلاب بالمعرفة والمهارات في مجال علوم الحياة واعدادهم ليشغلوا مهن المستقبل في سوق العمل وليكونوا اعضاء فاعلين في المجتمع، فضلا عن اسهام القسم في نشر المعرفة من خلال أعداد خريجين ذوي كفاءة عالية لتحقيق الاستدامة والتنمية في ضل الشراكة المجتمعية

- تقديم برامج تعليمية متميزة بمعايير عالمية تزود الطلبة بالمعرفة والمهارات التطبيقية ومهارات التفكير التحليلي لأعداد متخصصين في مجال علوم الحياة.

- مواكبة التقدم العلمي والتقني في مجال علوم الحياة من خلال تطوير الخطط التعليمية والمناهج الدراسية المبنية على اساس المعايير العالمية بما يساهم في تكوين كوادر اكايدمية وبحثية قادرة على المساهمة في خدمة المجتمع.

- تأهيل الطلبة لأكاسيهم المهارات التطبيقية التي تحتاجها سوق العمل وذلك من خلال توفير مختبرات علمية وبحثية بالتقنيات الحديثة.

- بناء شراكات مع القطاعين العام والخاص من خلال بيئة تعليمية توفر تعليما ممتازا وتعمل على انتاج البحوث المبتكرة والوصول إلى المجتمعات المحلية والإقليمية والعالمية.

- المساهمة في ايجاد حلول علمية للمشكلات البيولوجية التي تواجه المجتمع ووضعها موضع التنفيذ بالتعاون مع القطاعات الاخرى المختصة.

اهداف القسم:

قسم علوم الحياة يركز على دراسة الظواهر والعمليات البيولوجية في الكائنات الحية وبيئتها. يهدف إلى فهم التركيب والوظائف الخلوية والجزيئية، إضافة إلى التفاعلات البيولوجية والتطور والتكيف. يشمل البرنامج مواضيع مثل الجينات والوراثة، التصنيف الحيوي، التنوع البيولوجي، والبيئة. توفر البرامج الدراسية مزيجاً من الدورات النظرية والعملية، مما يساعد الطلاب على اكتساب المعرفة والمهارات اللازمة لفهم العالم الحي من حولهم.

الكادر التدريسي:

ت	الاسم مع اللقب العلمي	الشهادة الحاصل عليها	الاختصاص العام	الاختصاص الدقيق
1	م.د. عروبة ناظم حربي	دكتوراه	تقنيات احيائية	نانو تكنولوجيا
2	م.د. تانيا تحسين نعمة	دكتوراه	تقنيات احيائية	متحسسات حيوية
3	م.د. صفا مجاهد عبد اللطيف	دكتوراه	علوم الحياة	علم النبات
4	م.د. حسين محمود عباس	دكتوراه	علوم الحياة	الاحياء المجهرية
5	م.د. عنراء غازي عبد الرزاق	دكتوراه	علوم الكيمياء	الكيمياء اللاعضوية
6	م.د. رواسي اياد محمد	دكتوراه	علوم الفيزياء	الصلبة / نانوتكنولوجيا
7	م.د. سجي قيس علي	دكتوراه	علوم الفيزياء	الصلبة / نانوتكنولوجيا
8	م.د. رونق زهير فاضل	دكتوراه	تقنيات احيائية	تقنيات احيائية
9	م.م. منى بهاء الدين حايف	ماجستير	علوم الحياة	علم الحيوان
10	م.م. سالي هاني عبد الخالق	ماجستير	علوم الحياة	علم الحيوان
11	م.م. عبير عرفان عدنان	ماجستير	علوم كيمياء	علوم كيمياء
12	م.م. نور خاشع شاكر	ماجستير	علوم الحياة	علوم الحياة
13	م.م. سارة فاروق حسين	ماجستير	علوم الكيمياء	علوم الكيمياء
14	م.م. عنراء عبد الهادي كاظم	ماجستير	تقنيات احيائية	التقنيات الاحيائية
15	م.م. رنيم محمد عبد الجليل	ماجستير	علوم زراعة	وقاية النبات/ الحشرات
16	م.م. فاطمة احمد صبري	ماجستير	تقنيات احيائية	التقانة الاحيائية
17	م.م. سارة صائب رشيد	ماجستير	علوم الحياة	علم الحيوان
18	م.م. ياسر خليل ابراهيم	ماجستير	علوم الكيمياء	كيمياء حيائية
19	م.م. اصالة اركان جواد	ماجستير	علوم الحياة	احياء مجهرية
20	م.م. حسين علي كامل	ماجستير	تقنيات احيائية	احياء مجهرية

			Republic of Iraq Ministry of Higher Education and Scientific Research Al-Nahrain University Bachelor Four years (eight semesters) - 240 ECTS credits - 1 ECTS = 25 hours Program Curriculum (2024-2025)										جمهورية العراق وزارة التعليم العالي والبحث العلمي جامعة النهرين بكلوريوس قسم علوم الحياة (2024-2025) أربع سنوات (ثمانية فصول دراسية) - 240 وحدة اوروبية - كل وحدة اوروبية = 25 ساعة المنهاج الدراسي للعام (2024-2025)										 logo		
Level	Semester	No.	Module Code	Module Name	اسم المادة	Language	SSWL (hr/w)							Exam	SSWL	USSWL	SWL	ECTS	Module Type	Prerequisite					
							CL	Lect	Lab	Pr	Tut	Sm	Cln	hr/sem	hr/sem	hr/sem	hr/sem								
1	ONE	1	URCOM	Computer	حاسوب	الانجليزية	2	0	2	0	0	0	0	3	63	12	75	3	B						
		2	URENG1	New Headway Plus	اللغة الانكليزية	الانجليزية	2	0	0	0	0	0	0	3	33	17	50	2	B						
		3	CRMAT	Mathematics	الرياضيات	الانجليزية	2	0	0	0	1	0	0	3	48	77	125	5	S						
		4	Bio1102	General Chemistry	الكيمياء العامة	الانجليزية	2	0	2	0	1	0	0	4	79	96	175	7	C						
		5	CRGENPHY	General Physics	الفيزياء العامة	الانجليزية	2	0	2	0	0	0	0	4	64	61	125	5	S						
		6	Bio1101	General Zoology	علم الحيوان العام	الانجليزية	2	0	2	0	1	1	0	4	94	106	200	8	C						
							Total	12	0	8	0	3	1	0	21	381	369	750	30						
1	TWO	1	BIO1201	Botany	علم النبات	الانجليزية	2	0	2	0	1	1	0	4	94	106	200	8	C						
		2	BIO1202	Organic Chemistry	الكيمياء العضوية	الانجليزية	2	0	2	0	1	0	0	4	79	96	175	7	C						
		3	BIO1203	Biosafety and Biosecurity	السلامة البيولوجية والأمن البيولوجي	الانجليزية	2	0	0	0	1	0	0	3	48	102	150	6	C						
		4	URARA	Arabic Language	اللغة العربية	العربية	2	0	0	0	0	0	0	3	33	17	50	2	B						
		5	URDEM	Democracy & Human Rights	الديمقراطية وحقوق الانسان	العربية	2	0	0	0	0	0	0	3	33	17	50	2	B						
		6	BIO1204	Biostatistics	الاحصاء الحياتي	الانجليزية	2	0	0	0	1	0	0	3	48	77	125	5	C						
							Total	12	0	4	0	4	1	0	20	335	415	750	30						

**قسم علوم الحياة / جدول الدروس الأسبوعي للمرحلة الأولى (صباحي) الكورس الاول
2025-2024**

Day	10-12 AM	12-2 PM	2-4 PM	
Sunday	General Zoology	Mathematics	Tut. Mathematics	
Monday	Lab. General Physics (A)	Lab. General Physics (B)	Lab. General Physics (C)	
	Lab. General Chemistry (B)	Lab. General Chemistry (C)	Lab. General Chemistry (A)	
Tuesday	General Chemistry	Computer	Tut. General Zoology	
Wednesday	General Physics	New Headway Plus	Sem. General Zoology	Tut. General Chemistry
Thursday	Lab. General Zoology (C)	Lab. General Zoology (A)	Lab. General Zoology (B)	
	Lab. Computer (A)	Lab. Computer (B)	Lab. Computer (C)	

قسم علوم الحياة / جدول الدروس الأسبوعي للمرحلة الأولى (مسائي) الكورس الاول 2024

Day	10-12 AM	12-2 PM	2-4 PM
Saturday	Lab. General Zoology	Lab. Computer	
Day	2:30 -4:30 PM	4:30-6:30 PM	6:30-7 PM
Sunday	General Zoology	Mathematics	Tut. Mathematics
Monday	Lab. General Physics	Lab. General Chemistry	Sem. General Zoology
Tuesday	General Chemistry	Computer	Tut. General Chemistry
Wednesday	General Physics	New Headway Plus	Tut. General Zoology
Thursday			

MODULE DESCRIPTION FORM

Module Information					
Module Title	Zoology		Module Delivery		
Module Type	core		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☒ Seminar		
Module Code	Bio1102				
ECTS Credits	8				
SWL (hr/sem)	200				
Module Level		1			Semester of Delivery
Administering Department			College	كلية العلوم	
Module Leader	Dr.Oroba N. Harbi Dr.Hussein M. Abbas		e-mail	orooba.alhammood@nahrainuniv.edu.iq dr.hussein.mahmood@nahrainuniv.edu.iq	
Module Leader's Acad. Title		مدرس	Module Leader's Qualification		دكتوراه
Module Tutor	Dr.Safa M. Abdulateef Muna B. Haif Sally H. Abdel Khaleq Athraa A. Kadhim		e-mail	safa.mujahed@nahrainuniv.edu.iq muna.bahaa@nahrainuniv.edu.iq Sally.hani@nahrainuniv.edu.iq Athraa.a.k@nahrainuniv.edu.iq	
Peer Reviewer Name		Name	e-mail	E-mail	
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules			
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	Main Objectives: - Students will gain a basic understanding of the structures and purposes of the basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles. - Increase students' awareness and broad understanding of how these cellular components are used to generate and use energy in cells. - Increase students' knowledge of basic concepts of cell division and cell reproduction in organisms. - Students will apply their knowledge of cell biology to selected examples of changes or losses in cell function. These may include responses to environmental or physiological changes, or changes in cell function resulting from mutation. - Also, learn about the biological diversity of organisms and address the branches of life sciences in a broad way and gain a greater understanding and general idea of general biology and its comprehensiveness.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Unit 1: Introduction to Biology - Define biology and apply its principles - List the distinguishing characteristics of biological life - Identify the different types of cells that make up different types of organisms - Describe the classification and organizational tools used by biologists, including modern taxonomy - Describe biology as a science and identify the main components of scientific research Unit 2: Cell Structure and the Cell - Explain the cell - Identify and explain a variety of cellular components and their functions		

- Identify the cell cycle and cell division.
- Identify membrane-bound organelles found in eukaryotic cells
- Demonstrate familiarity with the various components of the cytoskeleton, including monomers
- Demonstrate familiarity with the various cell surface specializations

Unit 3: Cell Division

- Describe and explain the different stages of cell division
- Understand the structure and organization of chromosomes in eukaryotic cells
- Identify the stages of the cell cycle, with pictures and a description of key features.
- Identify and explain the important checkpoints that a cell goes through during the cell cycle
- Identify the stages of meiosis, with pictures and a description of key features. Explain why meiosis involves two rounds of nuclear division
- Describe and explain a range of mechanisms for generating genetic diversity
- Examine karyotypes and determine the effects of large changes in chromosome number.

Unit 4: Kingdoms and Diversity

- Understand the evolution of zoology, sources of biological diversity, and natural selection
- Describe and explain kingdoms in life sciences
- Understand the basis of the general classification of these kingdoms
- Identify the taxonomic ranks of organisms in general
- Describe the main foundations that scientists have agreed upon in establishing classification
- Describe and explain a group of classifications for scientists.

Unit 5: Animal Anatomy and Physiology

- Describe the organizational level of eukaryotic organisms.
- Understand the functions of the vital organs of the organism, including the respiratory, circulatory, digestive, nervous, reproductive, and excretory systems.
- A comprehensive description of embryonic development, cellular diversity, stem cells, formation, and transformation.
- Learn about animal behavior through types of behavior, mating, communication, and pheromones.

	• Learn about blood types and important immune cells. Unit 6: DNA Structure and Replication • Relate DNA structure to the process of DNA replication. • Explain how DNA stores genetic information. • Explain the role of complementary base pairing in the accurate replication of DNA. • Identify the effects of DNA mutations. Unit 7: DNA Transcription and Translation • Describe the conversion of DNA to RNA to proteins. • Outline the process of gene transcription. • Summarize the process of gene translation. • Outline the process of prokaryotic transcription and translation. • Identify the central dogma of life.
Indicative Contents	The instructive content includes the following. Introduction to Human Biology: History and milestones in the field of human biology Basic concepts of human biology and its applications. Blood group (also known as blood typing) is a classification of blood, based on the presence or absence of antibodies and inherited antigenic substances on the surface of red blood cells (erythrocytes). These antigens may be proteins, carbohydrates, glycoproteins, or glycolipids, depending on the blood group system. DNA as genetic material because of the apparent simplicity of its chemistry. DNA was known to be a long polymer consisting of only four types of subunits, which are chemically similar to each other. A DNA molecule consists of two long chains of polynucleotides made up of four types of nucleotide subunits. Each of these chains is known as a DNA strand, or DNA strand. Hydrogen bonds between the backbones of the nucleotides hold the two strands together. Chromosomes are thread-like structures found in the nucleus. They are important because they contain the essential genetic material, DNA. They are

	found inside the nucleus of plant as well as animal cells. Chromosomes were first discovered by Strassburger in 1815, and the term "chromosome" was first used by Walder in 1888. Humans have 46 chromosomes in their bodies. They are arranged in 23 pairs. "A chromosome is like a thread and is a coiled material made of proteins. Chromosomes are found in the nucleus of all cells, and they contain the essential genetic material, DNA, which is passed from one generation to the next. Structure: A chromosome generally consists of 8 parts; centromere or primary constriction or kinetochore, chromatids, chromatin, secondary constriction, telomere, chromomere, chromonema and matrix. Centromere or kinetochore: It is the primary constriction at the center to which chromatids or spindle fibers are attached. Its function is to enable the movement of the chromosome during the anaphase stage of cell division. Chromatid: During cell division, a chromosome is divided into two identical halves connected by a centromere. Laboratory Skills: Laboratory technician skills refer to the ability to perform specialized tasks in a laboratory setting. Laboratory technicians perform specialized scientific tests, often for technical or diagnostic purposes, where tasks such as assays, record keeping, dissection, pipetting, measuring, and sterilization is common. To complete these and other tasks, laboratory technicians need a combination of hard and soft skills to ensure they follow guidelines and produce accurate laboratory results.
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Learning and Teaching Strategies	
Strategies	The teaching strategies used in general biology and their expected outcomes in terms of knowledge acquisition and achievement of learning outcomes for students were as follows:

	- Competitive learning - Students work individually. - Students have common learning goals and tasks. - Individual learning - Students work individually and independently to achieve different individual learning goals and tasks that are not related to other students. - Collaborative learning - Students work in small groups. - Students share learning goals and tasks within the group that may be similar or different from other groups. - The teacher evaluates students on their work as groups and also on their individual work
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Student Workload (SWL)			
Structured SWL (h/sem) Regular student load during the semester	94	Structured SWL (h/w) Regular weekly student load	5
Unstructured SWL (h/sem) Irregular student load during the semester	106	Unstructured SWL (h/w) Irregular student load per week	5
Total SWL (h/sem) The student's total academic load during the semester	200		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes	2	10% (10)		

Formative assessment	Assignments	2	5% (5)		
	Projects / Lab.	2	10% (10)		
	Report	1	15% (15)		
Summative assessment	Midterm Exam	1 hr	10% (10)		
	Final Exam	4hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction and basic principle of human biology
Week 2	The cell: structure, characteristics and classification (Part I)
Week 3	The cell: structure, characteristics and classification (Part II)
Week 4	Evolution: evolution, diversity, similarity and natural selection
Week 5	Kingdoms and classification: Animal kingdom and other kingdoms
Week 6	Animal anatomy and physiology: respiratory system and circulatory system (Part I)
Week 7	Animal anatomy and physiology: digestive system and nervous system (Part II)
Week 8	First exam
Week 9	Animal anatomy and physiology: excretory system and endocrine glands (Part III)
Week 10	Animal anatomy and physiology: reproductive system and urinary system (Part IV)
Week 11	Immune system and blood cells
Week 12	Embryology: formation, differentiation and stem cells

Week 13	Structure and function of nucleic acids (Part I)
Week 14	Structure and function of nucleic acids (Part I)
Week 15	Preparation for Final exam

Delivery Plan (Weekly lab Syllabus)	
	Material Covered
Week 1	Lab 1: The students will understand the structure, types and function of microscope, and how the student use microscope and prepared laboratory slides.
Week 2	Lab2: An introduction about cell and cell theory, cell types and organization. Experiment 1/ Prepare a wet mount of onion epidermal skin Experiment 2/ Prepare a wet mount of cheek cells.
Week 3	Lab 3: The students will understand the cell structures and function's including: cell wall, cell membrane, mitochondria and endoplasmic reticulum, cytoplasm, cytosol, vacuoles and cytoskeleton, and will see some cell types under microscope in the laboratory.
Week 4	Lab 4. Transport of cellular materials part 1. - Types of transport across membranes including passive transport. - Passive transport across membrane including simple and facilitated diffusion. - Ink diffusion experiment -Dialysis tubing experiment.
Week 5	Lab 5. Transport of cellular materials part 2. - Passive transport across membrane including osmosis. - Osmosis and Tonicity (Dialysis Tubing bag) Active transport across membrane.
Week 6	Lab 6: The students will understand what is the gene structure and function, and will understand the function of nucleus, nucleolus, ribosomes and chromosomes.
Week 7	Lab 7: The students will understand the cell division and cycle, meiosis type of the cell cycle and what are the main stages of meiosis including: meiosis 1 meiosis 2. The students will understand what is the stem cells, types of stem cells, and how the development of stem cell into other body cells will occur.
Week 8	Lab 8: The students will understand the structure and function of DNA molecule. , the structure and function of RNA molecule and the difference between DNA and RNA molecules.

Week 9	Mid exam
Week 10	Lab 10: Human body organs system part 1. - 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 11	Lab 11: Human body organs system part 2. -An introduction about the skin, its function. -Skin layers features: -Epidermal appendages including: nails, hair, sweat glands and sebaceous glands.
Week 12	Lab 12: 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 13	Lab 13: Blood film Diagnosis types of blood cells Detection the disorders or abnormal cell shape
Week 14	Lab 14: CBC/blood count Detection the normal values of all blood cells Detection some blood disorders and diseases
Week 15	Preparation for Final exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Reference book: Johnks and Inglis(eds.) Text book of Human Biology, 3rd Ed.	No (Available as an e-book)
Recommended Texts		
Websites		

Grading Scheme			
Group	Grade	Marks (%)	Definition
Success Group (50- 100)	A- Excellent	90- 100	Outstanding Performance
	B- Very Good	80- 89	Above average with some errors
	C- Good	70- 79	Sound work with notable errors
	D- Satisfactory	60- 69	Fair but with major shortcomings
	E- Sufficient	50- 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(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.			

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	General Chemistry		Module Delivery
Module Type	Core		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☒ Seminar
Module Code	Bio1102		
ECTS Credits	7		
SWL (hr/sem)	175		
Module Level	1	Semester of Delivery	
Administering Department	Biology Science	College	1
Module Leader	Dr. Athraa ghazi abdulrazzaq	e-mail	College of Science
Module Leader's Acad. Title	lecturer	Module Leader's Qualification	athraa.ghazi@nahrainuniv.edu.iq
Module Tutor	Dr. Athraa ghazi abdulrazzaq	e-mail	Ph.D.
			<u>athraa.ghazi@nahrainuniv.edu.iq</u>

	MSc. Abeer Erfan Adnan MSc.Sarah farooq hussain		abeer.arfana@nahrainuniv.edu.iq Sarah.F.H@nahrainuniv.edu.iq
Peer Reviewer Name		e-mail	E-mail
Scientific Committee Approval Date	2024-11-18	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 primary objective of this course is to acquire basic concepts, principles, and techniques of modern analytical chemistry that would empower students with an analytical mind set and the abilities to solve diverse analytical problems in an efficient and quantitative way that conveys the importance of accuracy and precision of the analytical results. On successful completion of this course, students will be able: 1. To develop an understanding of the range and uses of analytical methods in chemistry. 2. To establish an appreciation of the role of chemistry in quantitative analysis 3. To develop an understanding of the broad role of the chemist in measurement and problem solving for analytical tasks. 4. To provide an understanding of chemical methods employed for elemental and compound analysis. 5. To provide experience in some scientific methods employed in analytical chemistry. 6. To develop some understanding of the professional and safety responsibilities residing in working on chemical analysis.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	After attending this course in Analytical Chemistry, the students have to be able to develop a basic knowledge of main principles of analytical methods as follows • To understand qualitative and quantitative properties of solutions, understanding all kinds of analytical concentrations. • To describe and explain chemical equilibriums of acid base reactions

	- To know basic definitions, properties and nomenclature of Alkan, alkenes, alcohol etc. - Understanding the principles of gravimetric and spectrochemical methods - Understanding the acid/base reactions and titration methods
Indicative Contents المحتويات الإرشادية	- Effectively teach practical science through the context of analytical chemistry - Design problem solving activities to challenge student understanding of analytical chemistry Understanding the safe handling of chemicals and the principles apparatus and unit operation in analytical chemistry.

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 presented during the class, home works and quizzes. Furthermore, encourage the student participation in panel discussion.

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	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	81	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.5
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	2	10% (10)	5, 10	LO #1, 2, 10 and 11
	Assignments	2	10% (10)	2, 12	LO # 3, 4, 6 and 7
Summative assessment	Midterm Exam	2 hr	30% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري			
	Material Covered		
Week 1	Chemicals, Apparatus, and Unit Operations of Analytical Chemistry		
Week 2	Concentrations of solutions: molarity, normality, part per million and percentage		
Week 3	Aqueous solutions: solubility and Chemical Equilibria		
Week 4			
Week 5	Gravimetric method of analysis		
Week 6	Acid and Bases: pH buffer acid-base and titration		
Week 7	Introduction to Spectrochemical Methods		
Week 8	The nature of chelation: Equilibria in solution of chelating ligands. Conditions for chelation.		
Week 9	Med exam		
Week 10	Organic Chemistry: Alkanes		
Week 11	Alkenes and Alkynes, Nomenclature of Alkenes and Alkynes		
Week 12	Aromatic compounds: Nomenclature of Benzene Derivatives		
Week 13	Structure and Properties of Alcohols: Ethers: Thiols		
Week 14	exam		
Week 15	Preparation for Final exam		
Total assessment		100% (100 Marks)	
\Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر			
	Material Covered		
Week 1	Lab 1: Safety rules and Laboratory equipment's(part1)		
Week2	Lab 2: Safety rules and Laboratory equipment's(part2)		
Week3	Lab3: Preparation of hydrochloric acid at different concentrations. (part1)		
Week 4	Lab4: Preparation of hydrochloric acid at different concentrations. (part2)		
Week 5	Lab5: Preparation of Sodium Hydroxide Solution with Different Concentrations(part1)		
Week 6	Lab6: Preparation of Sodium Hydroxide Solution with Different Concentrations(part2)		
Week 7	Lab 7: Purification of Table Salt(part1)		
Week 8	Lab 8: Purification of Table Salt(part2)		
Week 9	Lab 9: Acid base titration(part1)		
Week 10	Lab 10: Acid base titration(part2)		
Week 11	Lab 11: Preparation of sodium hydroxide		

Week 12	Lab12: Effect of concentration on reaction rate
Week 13	Lab 13: Preparation and reaction of barium peroxide
Week 14	Lab 14: Calculation the percentage of water in hydrated salt
Week 15	Preparation for Final exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Fundamental of analytical chemistry: Nine edition, Skoog	Yes
Recommended Texts	Fundamentals of chemistry: Fourth Edition, David E. Goldberg	No
Websites	Different websites	

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 DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية			
Module Title	Mathematics		Module Delivery
Module Type	Supportive		☐ Theory ☒ Lecture ☐ Lab ☒ Tutorial ☐ Practical ☐ Seminar
Module Code	CRMAT		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level		Semester of Delivery	
Administering Department		College	College of Sciences
Module Leader	Nabaa Hussein Fakhry	e-mail	nabaa.hussein@nahrainuniv.edu.iq mays.majid@nahrainuniv.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Assistant Lecturer
Module Tutor	Mays majid	e-mail	mays.majid@nahrainuniv.edu.iq
Peer Reviewer Name		e-mail	E-mail
Scientific Committee Approval Date		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	The aim of this course is for student 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 setting 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 domain, range and operation of someone variable functions and the graphs. 3. To determine limit and continuity of one variable functions. 4. To determine derivate of one variable functions. 5. To determine the solution of problems involving the derivate of one variable function. 6. To determine inverse function and its derivative. 7. To learn about application of derivatives. 8. To determine proper integral of one variable functions. 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 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, derivate of trigonometry function, chain rule, higher order derivate, implicit derivate, related rate, 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. - Methods of integrations, method of substitution, partial integration method, trigonometry integral and integral of rational function with partial fraction. - Improper integrals, test for convergence and divergence of improper integrals. - Application of Definite Integrals, Mean value theorem of integration, Area, solid revolution volume and Arc length.
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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	48	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	77	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 8	LO #1, 2, and 3
	Assignments	2	10% (10)	6, 9	LO # 4 and 5
	Report	1	10% (10)	12	LO # 5 and 6

Summative assessment	Midterm Exam	2	20% (20)	5,10	LO # 1-5
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Preliminaries, elementary Functions, and graphing.
Week 2	Exponential growth and decay, Sequences, More population models.
Week 3	Limits, Continuity, Limits at infinity, The Sandwich Theorem and some trigonometric limits, Properties of continuous functions.
Week 4	Formal definition of the derivative, The power rule, the basic rules of differentiation, and the derivatives of polynomials.
Week 5	Midterm Exam.
Week 6	The product and quotient rules, and the derivatives of rational and power functions. The chain rule and higher derivatives. Derivatives of trigonometric functions.
Week 7	Derivatives of exponential functions. Derivatives of inverse and logarithmic functions. Approximations and local linearity
Week 8	Extrema and the Mean Value Theorem. Monotonicity and Concavity.
Week 9	Extrema, inflection points, and graphing. Optimization.
Week 10	Midterm Exam.
Week 11	L'Hospital's rule.
Week 12	Difference equations: stability.
Week 13	Antiderivatives.
Week 14	The definite integral. The Fundamental Theorem of Calculus.
Week 15	Preparation for 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
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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 المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	General Physics		Module Delivery
Module Type	Basic		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☒ Seminar
Module Code	URGENPHY		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level			Semester of Delivery
Administering Department		Biology	College
			science
Module Leader	Dr.Rawasi Ayad Mohammed Dr.Saja Qais Ali		e-mail rewasi.ayad@nahrainuniv.edu.iq saja.qais@nahrainuniv.edu.iq
Module Leader's Acad. Title		Doctor lecturer Doctor lecturer	Module Leader's Qualification
Module Tutor	Dr.Rawasi Ayad Mohammed Dr.Saja Qais Ali		e-mail rewasi.ayad@nahrainuniv.edu.iq saja.qais@nahrainuniv.edu.iq
Peer Reviewer Name			e-mail
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	The study of general physics aims to provide students with the fundamentals and basic concepts necessary to understand natural phenomena and their applications in various fields, especially in the field of life sciences. Among its most important goals are: 1) Understanding the basic concepts Force, energy, motion, waves, optics, static electricity: (static electrical charges, Coulomb's law, electric field, electric potential) and moving electricity: (electric current, electrical circuits, resistance, Ohm's law) and magnetism 2) Developing analytical and mathematical skills (circuit analysis, applying physical laws and equations to solve problems related to mechanics, optics, electricity, and magnetism. 3) Developing scientific thinking skills: by solving physics problems, conducting practical experiments, and analyzing data.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1- enable students to obtain knowledge and understanding of the concept of physics. 2- Enable students to obtain knowledge and understanding of the scientific laws of physics. 3- Enable students to keep pace with scientific development in all scientific fields of physics.
Indicative Contents المحتويات الإرشادية	Indicative content includes the following. This course contains a lot of vocabulary, which is a branch of physics concerned with and properties of matter and energy.

	It includes an introduction to understanding natural phenomena, the forces and movement affecting their course, and the formulation of knowledge into laws that do not only explain aforementioned processes, but also predict the course of natural processes with models gradually approach reality. The topic of general physics includes an introduction to physics, vector analysis, Newton's in linear motion, circular motion, and rotational motion. Also, gravitational force, work, torque, angular momentum, laws of motion with constant or uniform acceleration of rotational motion, dynamic fluids, static fluids, particle stability, electric charge, electric and electric potential in electrical circuits and magnetism. .
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Learning and Teaching Strategies

استراتيجيات التعلم والتعليم

Strategies	1- Discussing the topics of the curriculum book and supporting references 2- Theoretical lectures including problem solving and discussion of homework 3- Asking students, a set of thinking questions during the lectures for specific topics. 4-Giving student's homework that requires finding self-solutions. 5-Giving student's topics related to the curriculum to prepare a seminar.
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Student Workload (SWL)

الحمل الدراسي للطالب

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

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	General introduction, importance of physics, physics and measurement, physical quantities, basic units and dimensions, standard unit systems, concepts of motion and force, distance, time, velocity, acceleration, Newton's first, second and third laws of motion. with examples for all these topics.
Week 2	Rotational motion, angular displacement, angular velocity, angular acceleration, centripetal force, torque, impulse and momentum, Work and power, kinetic energy, work-energy theory, power, machines, mechanical advantage, efficiency, with examples for all these topics.
Week 3	Energy and forms of energy, kinetic energy, stored energy, stored potential energy, elastic and static energy, law of conservation of energy, collisions, oscillatory motion, simple harmonic motion, spring, Hooke's law, simple pendulum, types of waves, mechanical waves, electromagnetic waves, with examples for all these topics.

Week 4	Basics of light, sources of light, wave nature of light, colors, polarization of light, law of reflection, law of refraction, critical angle, prism, with examples for all these topics.
Week 5	Spherical, convex, concave lenses, applications on lenses, general law of lenses, mirrors and their types, with examples for all these topics.
Week 6	Interference and diffraction, types of light, Young's experiment, interference in thin films, diffraction grating, with examples for all these topics.
Week 7	Mid-term exam
Week 8	Static electricity and electric charge are conserved, Electric charge in an atom, Conductors and insulators, Induced charge and electroscope, Coulomb's law.
Week 9	Electric field, Electric field intensity, Electric field lines, Electric fields and conductors.
Week 10	Electric potential energy and potential difference, the relationship between electric potential and electric field, Equipotential lines, Electron-volt as a unit of energy, the electric potential generated by point charges, Condenser and its definition, Insulators, Electric energy storage.
Week 11	Electric current, Electric battery, Ohm's law(Resistance and resistivity), Electrical capacity, Electrical conduction in the human nervous system.
Week 12	Magnets and magnetic fields, Electrical currents produce magnetic fields., The magnetic field generated by a long straight wire, The force between two parallel current-carrying wires, Definition of ampere and coulomb.
Week 13	The force acting on a current-carrying conductor in a magnetic field, the force acting on a moving charge in a magnetic field.
Week 14	Ampère's law, Applications of galvanometers, motors and amplifiers, Mass spectrometer, Ferromagnetism.
Week 15	Preparation for Final exam
Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Lab 1: Refraction index part 1

Week 2	Lab 2: Refraction index part 2
Week 3	Lab 3: Simple pendulum part 1
Week 4	Lab 4: Simple pendulum part 2
Week 5	Lab 5: Forces
Week 6	Lab 6: Surface tension part1
Week 7	Lab 7: Surface tension part 2
Week 8	Mid exam
Week 9	Lab 8: Ohm's law part 1
Week 10	Lab 9: Ohm's law part 2
Week 11	Lab 10: Parallel series part1
Week 12	Lab 11: Parallel series part 2
Week 13	Lab 12: Capacitance charging: the time constant of RC circuits part1
Week 14	Lab 13: Connection of capacitor
Week 15	Lab 14: Preparation for Final exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Fundamental of Physics (Halliday, Resnick, and Walker).	yes
Recommended Texts		

Websites	
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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.



Note: This model was applied by the Director of Quality Assurance at the Ministry of Higher Scientific Education

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Introduction to Computer Science		Module Delivery
Module Type	Basic		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	URCOM		
ECTS Credits	4		
SWL (hr/sem)	100		
Module Level	UGx11 1	Semester of Delivery	
Administering Department	CS	College	Type College Code
Module Leader	Safaa H. Shwail	e-mail	safaa.husseinshwail@nahrainunive.edu.iq
Module Leader's Acad. Title	Lecturer	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail

Scientific Committee Approval Date	01/06/2023	Version Number	1.0
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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. Exploring Computers, their types, and Their Uses. 2. Looking Inside the Computer System and explore its parts. 3. Transforming Data into Information and how computer represent data. 4. How to represent decimal numbers into another number systems like binary, octal, and hexadecimal. 5. Learning the operation in binary. 6. Using the keyboard and mouse and recognizing other input devices. 7. Recognizing monitors and their types. 8. Recognizing printers. 9. Exploring operating systems.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Exploring the computer generations. 2. Learning types of computers for individual users. 3. Learning types of computers for organizations. 4. The parts of computer systems. 5. The information processing cycle and its parts. 6. Computer hardware devices: Processor, Memory, Input and Output, and storage. 7. Types of software: system software and application software. 8. How computer represent data: number systems, bits and bytes, and text codes. 9. How computer process data: CPU, machine cycle, and memory.

	10. Factors Affecting Processing Speed. 11. Cache memory. 12. Representing decimal numbers in binary, octal, and hexadecimal. 13. Converting from decimal to binary, octal, and hexadecimal. And vice versa. 14. Learning Binary Coded Decimal BCD. 15. Binary addition. 16. Binary subtraction using borrow, 1's complement, and 2's complement. 17. Addition and Subtraction of Binary Numbers using sign bit. 18. Binary multiplication and binary division. 19. The Standard Keyboard Layout. 20. How the Computer Accepts Input from the Keyboard. 21. Learning mouse, trackballs, trackpads, and other devices for hand. 22. Game controllers. 23. Optical input devices: bar code readers, image scanners, and optical character recognition OCR. 24. Audio-Visual input devices: microphones and digital cameras. 25. Monitors categorization by the way they display colors. 26. CRT monitors, Flat-Panel monitors, and other types of monitors. 27. Comparing monitors according to: size, resolution, refresh rate, and dot pitch. 28. Video cards. 29. Types of printers: dot matrix printers, ink jet printers, and laser printers. 30. Important criteria for evaluating printers. 31. Plotters. 32. The purpose of operating systems. 33. Types of operating systems. 34. Providing a user interface: graphical and command-line. 35. Running programs. 36. Enhancing an OS with utility software.
Indicative Contents المحتويات الإرشادية	Exploring the computer generations. Learning types of computers for individual users. Learning types of computers for organizations. The parts of computer systems. The information processing cycle and its parts. Computer hardware devices: Processor, Memory, Input and Output, and storage. Types of software: system software and application software. How computer represent data: number systems, bits and bytes, and text codes. How computer process data: CPU, machine cycle, and memory. Factors

	Affecting Processing Speed. Cache memory. Representing decimal numbers in binary, octal, and hexadecimal. Converting from decimal to binary, octal, and hexadecimal. And vice versa. Learning Binary Coded Decimal BCD. Binary addition. Binary subtraction using borrow, 1's complement, and 2's complement. Addition and Subtraction of Binary Numbers using sign bit. Binary multiplication and binary division. The Standard Keyboard Layout. How the Computer Accepts Input from the Keyboard. Learning mouse, trackballs, trackpads, and other devices for hand. Game controllers. Optical input devices: bar code readers, image scanners, and optical character recognition OCR. Audio-Visual input devices: microphones and digital cameras. Monitors categorization by the way they display colors. CRT monitors, Flat-Panel monitors, and other types of monitors. Comparing monitors according to: size, resolution, refresh rate, and dot pitch. Video cards. Types of printers: dot matrix printers, ink jet printers, and laser printers. Important criteria for evaluating printers. Plotters. The purpose of operating systems. Types of operating systems. Providing a user interface: graphical and command-line. Running programs. Enhancing an OS with utility software.
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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.

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Student Workload (SWL)			
الحمل الدراسي للطلاب محسوب ل ١٥ اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطلاب خلال الفصل	63	Structured SWL (h/w) الحمل الدراسي المنتظم للطلاب أسبوعيا	7
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	37	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	6
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	100		

Module Evaluation					
تقييم المادة الدراسية					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)		All
	Assignments	2	10% (10)		All
	Projects / Lab.	1	10% (10)	Continuous	All
	Report	1	10% (10)		All
Summative assessment	Midterm Exam	2 hr	10% (10)		All
	Final Exam	3hr	50% (50)		All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

	Material Covered
Week 1	Exploring Computers and Their Uses
Week 2	Looking Inside the Computer System
Week 3	Transforming Data into Information
Week 4	Number Systems
Week 5	Number Systems (cont.)
Week 6	Operations in Number Systems
Week 7	Operations in Number Systems (cont.)
Week 8	Mid-term Exam 1
Week 9	Using the Keyboard and Mouse
Week 10	Monitors and their types
Week 11	Monitors and their types (cont.)
Week 12	Printers and their types
Week 13	Printers and their types (cont.)
Week 14	Operating Systems
Week 15	Preparation for Final exam

Delivery Plan (Weekly Lab. Syllabus)

المنهاج الاسبوعي للمختبر

	Material Covered
Week 1	Lab 1: Computer Hardware 1
Week 2	Lab 2: Computer Hardware 2
Week 3	Lab 3: Computer Assembly 1
Week 4	Lab 4: Computer Assembly 2
Week 5	Lab 5: Disk Operating System
Week 6	Lab 6: Dos Commands: Internal Commands
Week 7	Lab 7: Dos Commands: Internal Commands 2
Week 8	Mid-Term Exam 1
Week 9	Lab 8: Dos Commands: Internal Commands 2
Week 10	Lab 8: Dos Commands: Internal Commands 2
Week 11	Lab 9: Dos Commands: External Commands 2
Week 12	Lab 10: Dos Commands: External Commands 2
Week 13	Lab 11: Dos Commands: External Commands 2
Week 14	Lab 12: Dos Commands: External Commands 2
Week 15	Preparation for Final exam

Learning and Teaching Resources		
مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	Introduction To Computers 6th edition By Peter Norton	Yes

Recommended Texts	Computer System Architecture 3rd edition by M.Morris Mano	No
Recommended Texts	Fundamentals of Logic Design, 6th edition 2010	No

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.				

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		UGx111	Semester of Delivery		1
Administering Department		Department of Biology	College	Science	
Module Leader	Lecturer Israa Namh Abdula		e-mail	Israa.asultani@nahrainuniv.edu.iq	
Module Leader's Acad. Title		Assist. Lecturer	Module Leader's Qualification		M.A.
Module Tutor	None		e-mail	None	
Peer Reviewer Name		None	e-mail	None	
Review Committee Approval			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			
	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.		

Module Aims أهداف المادة الدراسية	3. Strengthening Writing Proficiency: - Develop students' writing skills across different genres (e.g., essays, emails, reports). - Emphasize grammar, sentence structure, and vocabulary usage. 4. Expanding Vocabulary: - Introduce new words and phrases to broaden students' vocabulary. - Provide strategies for effective vocabulary acquisition and retention. 5. Grammar Mastery: - Ensure a solid grasp of essential grammar rules and structures. - Focus on practical application in spoken and written communication. 6. Listening Skills Development: - Improve students' ability to comprehend spoken English in various contexts. - Provide exposure to different accents and speaking speeds. 7. Critical Thinking through Discussions: - Encourage students to engage in discussions to develop critical thinking skills. - Promote the use of evidence and persuasive language in discussions. 8. 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 ask and respond to basic questions related to personal information, daily activities, and immediate surroundings. 3. Students will exhibit improved reading comprehension by accurately summarizing and analyzing information from a variety of texts. 4. Students will produce well-organized written compositions with a clear introduction, body, and conclusion. 5. Students will apply correct grammar and sentence structures in spoken and written communication. 6. Students will demonstrate improved listening comprehension across a range of accents and contexts 7. Students will actively participate in discussions, expressing and defending their opinions. 8. Students will deliver clear and organized presentations using appropriate language and visuals.
Indicative Contents المحتويات الإرشادية	Basic Communication Skills: • Greetings and introductions • Describing daily routines

	- Asking and answering simple questions Reading Comprehension: - Short stories and simple narratives - Comprehension exercises with questions Writing Proficiency: - Sentence structure and formation - Paragraph writing 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			
SSWL (Structured SWL (h/sem))	33	Structured SWL (h/w)	2

الحمل الدراسي المنتظم للطلاب خلال الفصل		الحمل الدراسي المنتظم للطلاب أسبوعيا	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطلاب خلال الفصل	17	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطلاب أسبوعيا	1.2
Total SWL (h/sem) الحمل الدراسي الكلي للطلاب خلال الفصل	50		

Module Evaluation

تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	1	10% (10)	5, 10	LO #1, 3, 5 and 8
	Assignments	1	10% (10)	4, 12	LO # 2, 4, 5 and 6
	presentation	1	10% (10)	3-14	
	Report	1	10% (10)	11	LO #4
Summative assessment	Midterm Exam	2 hr	10% (10)	7	LO # 1, 3, 7, and 8
	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 the course, syllabus, and expectations.
Week 2	Unit One of the textbooks "Hello": Basic greetings and practice activities. Basic grammar
Week 3	Writing skills: the basics of writing a paragraph
Week 4	Unit Two of the textbook "Your World": Vocabulary related to daily routines and countries' names. Present simple tense for daily activities. Describing things using adjectives.

Week 5	Unit Three of the textbook “All About You”: Vocabulary related to professions, questions and negatives, and social expressions.
Week 6	Unit Four of the textbook “Family and Friends”: Possessive Adjectives, Possessive (’s), and (Adjective+noun) • Reading and speaking. • Role-playing on-campus scenarios.
Week 7	Mid-term
Week 8	Unit Five of the textbook “The Way I Live”: Uses of definite and indefinite articles, Adjectives + nouns. - Languages and Nationalities
Week 9	Unit Six of the textbook “Every day”: Adverbs of frequency used with present simple tense. - Vocabulary related to travel and transportation. - Asking for and giving directions. - Role-playing travel scenarios.
Week 10	Unit Seven of the textbook “My Favourites”: Reading and writing a postcard and an e-mail to a friend. Adjectives and their opposites.
Week 11	Unit Eight of the textbook “Where I live”: Introduction to prepositions (prepositions of place and time)
Week 12	-Writing and talking about personal interests. -Group activity: planning a class event based on shared interests.
Week 13	Vocabulary related to health and daily activities. Expressions for discussing health. Role-playing doctor-patient scenarios.
Week 14	Listening Skill: Listening to a podcast, and class discussions
Week 15	Preparatory Week for the final exam

Delivery Plan (Weekly Lab. Syllabus)

المناهج الاسبوعي للمختبر

	Material Covered
Week 1	
Week 2	
Week 3	
Week 4	
Week 5	
Week 6	
Week 7	

Learning and Teaching Resources

مصادر التعلم والتدريس

	Text	Available in the Library?
Required Texts	"New Headway Plus- Beginner", John and Liz Soars, 2014.	Yes
Recommended Texts		
Websites	www.youtube.com (short videos+ chosen movies)	

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

قسم علوم الحياة / جدول الدروس الأسبوعي للمرحلة الأولى (صباحي) الكورس الثاني
2025-2024

Day	08:30- 10:30 AM	10:30- 12:30 AM	12:30- 02:30 PM
Sunday	Biostatistics	Biosafety and Biosecurity	Tut. Biostatistics
Monday	Lab. Plant (A)	Lab. Plant (B)	Lab. Plant (C)
	Lab. Organic Chemistry (B)	Lab. Organic Chemistry (C)	Lab. Organic Chemistry (A)
Tuesday	Arabic	Democracy	
Wednesday	Organic Chemistry	Sem. Plant	Tut. Plant
Thursday	Tut. Organic chemistry	Plant	Tut. Biosafety and Biosecurity

قسم علوم الحياة / جدول الدروس الأسبوعي للمرحلة الأولى (مساءلي) الكورس الثاني
2025-2024

Day	8:30-10:30 PM	10:30-12:30 PM	
Saturday	Lab. Plant	Lab. Organic Chemistry (B)	
Day	2:30-4:30 PM	4:30-6:30 PM	6:30-7 PM
Sunday	Biostatistics	Biosafety and Biosecurity	Tut. Biostatistics
Monday	Plant	Sem. Plant	Tut. Plant
Tuesday	Arabic	Democracy	
Wednesday	Organic Chemistry	Tut. Organic Chemistry	Tut. Biosafety and Biosecurity
Thursday			

MODULE DESCRIPTION FORM

Module Information			
Module Title	Botany		Module Delivery
Module Type	core		☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☒ Seminar
Module Code	BIO1201		
ECTS Credits	8		
SWL (hr/sem)	200		
Module Level	1	Semester of Delivery	
Administering Department		College	كلية العلوم
Module Leader	Dr. Rawnaq Zuhair Fadhil		e-mail rawnaq.z.f@nahrainuniv.edu.iq
Module Leader's Acad. Title	مدرس	Module Leader's Qualification	دكتوراه
Module Tutor	Dr.Safa M. Abdulateef Dr.Hussein M. Abbas Athraa A. Kadhim Sara Seab Rasheed Hussein Ali Kamil Raneem mohammed abd aljaleel Noor khashea Fatema Ahmed		e-mail safa.mujahed@nahrainuniv.edu.iq dr.hussein.mahmood@nahrainuniv.edu.iq athraa.a.k@nahrainuniv.edu.iq sarah.s.r@nahrainuniv.edu.iq Hussein.A.Kamil@nahrainuniv.edu.iq Raneem.mohammed@alnahrainuniv.edu.iq Noor.Kh.Sh@nahrainuniv.edu.iq
Peer Reviewer Name	Name	e-mail	E-mail

Scientific Committee Approval Date		Version Number	1.0
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Relation with other Modules			
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	Main Objectives: • Understand Plant Structure and Function including the anatomy, morphology, and physiology of plants to understand how plants grow, reproduce, and survive in various environments). • Explore Plant Diversity such as algae, mosses, ferns, gymnosperms, and angiosperms, highlighting their evolutionary relationships and ecological roles. • Understanding how plants interact with each other, their environment, and other organisms • Examining how plants develop from seeds to mature organisms, including topics like germination, flowering, pollination, and seed dispersal. 6. Analyzing modern applications of plant biology, such as genetic modification, plant breeding, and sustainable agriculture practices.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Unit 1: Understand Plant Structure and Function: • Describe the basic structure of plant cells, tissues, and organs (roots, stems, leaves, flowers, and fruits). • Explain the physiological processes that occur in plants, such as photosynthesis, respiration, and transpiration. Unit 2: Classify and Identify Plants: • Recognize and classify plants based on their taxonomic groups (e.g., ferns, gymnosperms, angiosperms).		

	• Identify different plant species and understand their ecological significance. Unit 3: Plant Reproduction: • Understand the mechanisms of plant reproduction, both sexual (e.g., pollination, fertilization) and asexual (e.g., vegetative propagation). • Analyze the role of gametes, flowers, and fruit in the reproduction of plants. Unit 4: Plant Evolution: • Discuss the evolutionary history of plants, including the transition from aquatic to terrestrial plants. • Explain the relationship between different plant groups and their evolutionary adaptations Unit 5: Economic and Medicinal Uses of Plants: • Identify plants with economic importance, such as crops, timber, and medicinal plants. • Investigate the impact of plants on human societies and how they contribute to food security, medicine, and culture. Unit 6: Plant Ecology: • Understand the role of plants in ecosystems and their interactions with other organisms (e.g., herbivores, pollinators, fungi). • Examine how plants adapt to different environmental conditions, such as water availability, light, and temperature
Indicative Contents	The instructive content includes the following. ❏ Introduction to Botany • Definition and Importance of Botany • History of Botany • Branches of Botany ❏ Plant Cell and Tissues • Structure of Plant Cells

- Types of Plant Tissues (Meristematic and Permanent Tissues)
- Functions of Plant Tissues

? Plant Morphology

- Roots, Stems, and Leaves
- Flower Structure
- Inflorescence Types

? Plant Physiology

- Photosynthesis
- Respiration in Plants
- Transpiration
- Plant Nutrition and Mineral Absorption

? Plant Reproduction

- Asexual Reproduction in Plants
- Sexual Reproduction in Plants (Pollination, Fertilization, Seed Formation)
- Fertility and Germination

? Plant Ecology

- Plant Adaptations to the Environment
- Plant Habitats and Ecosystems
- Role of Plants in the Environment

? Genetics and Evolution in Plants

- Plant Genetics and Heredity
- Plant Breeding and Biotechnology
- Evolutionary Principles in Plants

? Economic Botany

- Importance of Plants in Medicine, Agriculture, and Industry
- Major Crop Plants and Their Uses
- Medicinal Plants

? Plant Pathology

- Diseases in Plants

	• Causes and Control of Plant Diseases • Plant Pests and Their Management Conservation of Plants • Threats to Plant Diversity • Conservation Techniques (Seed Banks, Protected Areas) • Sustainable Use of Plant Resources Laboratory Skills: Laboratory technician skills refer to the ability to perform specialized tasks in a laboratory setting. Laboratory technicians perform specialized scientific tests, often for technical or diagnostic purposes, where tasks such as assays, record keeping, dissection, pipetting, measuring, and sterilization is common. To complete these and other tasks, laboratory technicians need a combination of hard and soft skills to ensure they follow guidelines and produce accurate laboratory results.
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Learning and Teaching Strategies	
Strategies	The teaching strategies used in general botany and their expected outcomes in terms of knowledge acquisition and achievement of learning outcomes for students were as follows: 4. Competitive learning • Students work individually. • Students have common learning goals and tasks. 5. Individual learning • Students work individually and independently to achieve different individual learning goals and tasks that are not related to other students. 6. Collaborative learning • Students work in small groups. • Students share learning goals and tasks within the group that may be similar or different from other groups. • The teacher evaluates students on their work as groups and also on their individual work

Student Workload (SWL)			
Structured SWL (h/sem) Regular student load during the semester	94	Structured SWL (h/w) Regular weekly student load	5
Unstructured SWL (h/sem) Irregular student load during the semester	106	Unstructured SWL (h/w) Irregular student load per week	5
Total SWL (h/sem) The student's total academic load during the semester	200		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)		
	Assignments	2	5% (5)		
	Projects / Lab.	2	10% (10)		
	Report	1	15% (15)		
Summative assessment	Midterm Exam	1hr	10% (10)		
	Final Exam	4hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to general Botany

Week 2	Structure and function of plant cells and cytoskeleton
Week 3	Structure and function of plant organelles
Week 4	Plant biochemical compounds and their classification
Week 5	Plant molecular biology
Week 6	Respiration and Photosynthesis regulation
Week 7	Mid exam
Week 8	Plant growth, development and reproduction
Week 9	Plant tissue
Week 10	Plant diseases and infectious agents
Week 11	programmed cell death pathways in plant
Week 12	environmental and economic importance of Plant
Week 13	Plant biotechnology and genetic engineering
Week 14	Plant and global climate
Week 15	Final exam

Delivery Plan (Weekly lab Syllabus)	
	Material Covered
Week 1	Plant kingdom taxonomy
Week 2	Slides involved different genera belongs to monocot & dicot plants
Week 3	Plant cell structures (living organelles), cell wall , pits

Week 4	Comparative study among different types of plastids (slides show using specific slides set) Experiment: Separation of photosynthetic pigments by chromatography
Week 5	Non-living plant cell content including vacuoles (slides)
Week 6	Non-living plant cell content including ergastic substances e.g crystal (Aloe stems crystals + Pyrus stone cells slides)
Week 7	Mid exam
Week 8	Plant cell division involved mitosis + meiosis
Week 9	Experiment: Root tips experiment (Root tip of Vicia faba mitosis)
Week 10	Root tips experiment (Root tip of Allium onion mitosis)
Week 11	Root tips experiment (Root tip Zea maize mitosis)
Week 12	Plant tissues
Week 13	Plant body parts
Week 14	Slide show on different plants parts including, roots, stem, leaf, flowers , bud etc....
Week 15	Second Exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	"Botany: An Introduction to Plant Biology" by James D. Mauseth, Plant Biology" by Linda E. Graham, James M. Graham, and Lee W. Wilcox	No (Available as an e-book)

	This book offers a detailed exploration of plant biology with an emphasis on the molecular and cellular mechanisms that underlie plant development and physiology	
Recommended Texts		
Websites		

Grading Scheme			
Group	Grade	Marks (%)	Definition
Success Group(50- 100)	A- Excellent	90- 100	Outstanding Performance
	B- Very Good	80- 89	Above average with some errors
	C- Good	70- 79	Sound work with notable errors
	D- Satisfactory	60- 69	Fair but with major shortcomings
	E- Sufficient	50- 59	Work meets minimum criteria
Fail Group(0 – 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(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.			

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي



MODULE DESCRIPTION FORM

Module Information				
Module Title	Organic Chemistry		Module Delivery	
Module Type	Core		☒ Theory ☒ Lecture ☒ Lab ☐ Tutorial ☐ Practical ☒ Seminar	
Module Code	BIO1202			
ECTS Credits	7			
SWL (hr/sem)	175			
Module Level	1	Semester of Delivery		1
Administering Department		College	كلية العلوم	
Module Leader	Dr. Athraa ghazi abdulrazzaq		e-mail	athraa.ghazi@nahrainuniv.edu.iq
Module Leader's Acad. Title	مدرس		Module Leader's Qualification	دكتوراه
Module Tutor	Dr. Athraa ghazi abdulrazzaq Asist.lec. Abeer Erfan Adnan Asist.lec. Yasir Khaleel Almusawi Asist.lec. Sarah farooq hussain		e-mail	athraa.ghazi@nahrainuniv.edu.iq abeer.arfana@nahrainuniv.edu.iq yasir.khaleel@nahrainuniv.edu.iq Sarah.F.H@nahrainuniv.edu.iq

Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date		Version Number	1.0

Relation with other Modules			
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	Main Objectives: Course Objectives, Learning Outcomes, and Suggested Content for Organic Chemistry Course Objectives: 1. To develop a strong understanding of the principles and concepts of organic chemistry. 2. To explore the structure, reactivity, and mechanisms of organic compounds. 3. To provide students with practical experience in organic synthesis and analysis. 4. To introduce various techniques used for the identification and characterization of organic compounds. 5. To emphasize the importance of organic chemistry in real-world applications, including pharmaceuticals, agriculture, and environmental sciences. Learning Outcomes: Upon successful completion of the course, students will be able to: 1. Understand the fundamental principles of organic chemistry, including bonding, functional groups, and isomerism. 2. Apply knowledge of reaction mechanisms to predict and explain the behavior of organic compounds.		

	- Synthesize and analyze organic compounds using a variety of laboratory techniques. - Identify and characterize organic compounds through methods such as spectroscopy and chromatography. - Understand the importance of organic chemistry in practical fields such as medicine, industry, and environmental science. Suggested Content: Introduction to Organic Chemistry - Basic concepts and terminology - The structure of organic compounds - Bonding and molecular geometry Functional Groups and Isomerism - Alkanes, alkenes, alkynes - Alcohols, ethers, aldehydes, ketones, acids, esters, etc. - Structural isomerism and stereochemistry Reaction Mechanisms - Types of reactions: substitution, addition, elimination, rearrangement - Nucleophilic and electrophilic reactions - Free radical mechanisms Organic Synthesis - Strategies in organic synthesis - Reactions in organic synthesis - Retrosynthetic analysis Spectroscopic Techniques - Infrared spectroscopy (IR) - Nuclear magnetic resonance (NMR) spectroscopy - Mass spectrometry (MS) - Ultraviolet-visible (UV-Vis) spectroscopy Laboratory Techniques - Extraction, distillation, crystallization, chromatography - Purification of organic compounds
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Module Learning Outcomes (Organic Chemistry): - Understand the basic principles of organic chemistry: - Understanding chemical bonding and the molecular structure of organic compounds.

	○ Identifying and interpreting the fundamental patterns in the reactions of organic compounds. ● Analyze chemical reactions and their mechanisms: ○ Analyzing various organic reactions such as addition, substitution, and elimination. ○ Understanding the mechanisms of organic reactions using concepts like nucleophilicity and electrophilicity. ● Ability to differentiate between types of organic compounds: ○ Recognizing and classifying different types of organic compounds based on functional groups. ○ Understanding the structural classification of compounds. ● Use of diagnostic and analytical techniques: ○ Applying techniques such as infrared (IR) spectroscopy and mass spectrometry (MS) to determine the structure of organic compounds. ○ Using techniques like ultraviolet-visible (UV-Vis) spectroscopy and nuclear magnetic resonance (NMR) spectroscopy for compound analysis. ● Ability to perform organic synthesis and preparation: ○ Conducting laboratory experiments to prepare organic compounds using various synthetic methods. ○ Designing and carrying out total synthesis strategies for organic preparations. ● Apply organic chemistry in practical fields: ○ Understanding how organic chemistry is applied in industries such as pharmaceuticals, environmental science, agriculture, and other chemical industries. ● Critical thinking and problem-solving: ○ Developing critical thinking skills to solve chemical problems related to organic compounds. ○ Predicting the reactions of organic compounds through a deep understanding of chemical mechanisms. ●
Indicative Contents	Indicative Contents for Organic Chemistry: 1. Introduction to Organic Chemistry ○ Basic concepts and terminology in organic chemistry ○ The structure and bonding of organic compounds ○ Overview of organic functional groups 2. Functional Groups and Nomenclature ○ Alkanes, alkenes, alkynes ○ Alcohols, ethers, aldehydes, ketones, carboxylic acids, esters, amines, etc.

- IUPAC nomenclature and systematic naming of organic compounds

3. Isomerism

- Structural isomerism and stereoisomerism
- Geometrical (cis-trans) and optical isomerism
- Conformational analysis

4. Reactions and Mechanisms

- Types of organic reactions: substitution, addition, elimination, rearrangement
- Nucleophilic and electrophilic reactions
- Radical mechanisms and pericyclic reactions

5. Reaction Kinetics and Thermodynamics

- Principles of reaction rates and reaction mechanisms
- The role of activation energy and catalysts
- Thermodynamic considerations in organic reactions

6. Organic Synthesis

- Methods and strategies for organic synthesis
- Retrosynthetic analysis and synthetic routes
- Green chemistry and sustainable methods

7. Spectroscopic Techniques for Structural Elucidation

- Infrared spectroscopy (IR)
- Nuclear magnetic resonance (NMR) spectroscopy
- Mass spectrometry (MS)
- Ultraviolet-visible (UV-Vis) spectroscopy
- Chromatography and separation techniques

8. Aromatic Compounds

- The structure and properties of benzene and aromatic systems
- Electrophilic aromatic substitution reactions
- Substituent effects on aromatic compounds

9. Polymeric Materials and Organic Polymers

- Polymerization methods: addition and condensation polymerization
- Structure and properties of organic polymers
- Industrial applications of polymers

10. Environmental and Biological Applications of Organic Chemistry

- The role of organic chemistry in pharmaceuticals and drug design
- Organic chemistry in agrochemicals and pesticides
- Organic compounds in environmental chemistry and sustainability

Learning and Teaching Strategies

Strategies

Strategies for Organic Chemistry:

- 1. Understanding Core Principles**
 - Focus on mastering the fundamental concepts of organic chemistry, such as bonding, functional groups, and isomerism.
 - Develop a solid understanding of reaction mechanisms and the ability to predict reaction outcomes.
- 2. Use of Visual Aids and Molecular Models**
 - Utilize molecular models or visualization software to understand molecular structures and stereochemistry.
 - Draw and analyze reaction mechanisms step by step, using arrows to indicate electron movement.
- 3. Mastering Nomenclature and Functional Group Identification**
 - Practice the IUPAC system of nomenclature to confidently name organic compounds.
 - Become proficient in identifying functional groups and understanding their reactivity and properties.
- 4. Synthesis and Retrosynthesis Approach**
 - Use retrosynthetic analysis to break down complex molecules into simpler precursors, helping to design synthetic routes.
 - Plan organic syntheses by considering available reactions, reagents, and conditions.
- 5. Familiarity with Analytical Techniques**
 - Master techniques such as NMR, IR, MS, and UV-Vis spectroscopy to analyze and identify organic compounds.
 - Gain practical experience in interpreting spectra and understanding the information they provide about molecular structure.
- 6. Problem-Solving with Reaction Mechanisms**
 - Learn to approach problems by focusing on reaction mechanisms, which provide insight into why reactions occur.
 - Practice drawing out detailed mechanisms for various types of reactions (e.g., nucleophilic substitution, electrophilic addition).
- 7. Experimental Techniques and Laboratory Skills**
 - Gain hands-on experience in organic synthesis, purification, and analysis through laboratory work.
 - Become proficient in techniques like distillation, recrystallization, chromatography, and extraction to purify and isolate compounds.
- 8. Study and Review Practice**
 - Regularly review reaction mechanisms, functional group properties, and nomenclature rules to reinforce learning.

	○ Solve practice problems and previous exams to build confidence and improve problem-solving speed. 9. Collaboration and Group Study ○ Collaborate with peers in group study sessions to discuss and solve complex problems. ○ Exchange knowledge, share techniques, and clarify difficult topics with others. 10. Application of Organic Chemistry to Real-World Problems • Relate theoretical knowledge to practical applications in fields like drug design, environmental chemistry, and industrial processes. • Stay updated on advancements in organic chemistry and their impact on medicine, agriculture, and sustainability.
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Student Workload (SWL)			
Structured SWL (h/sem)	94	Structured SWL (h/w)	7
Regular student load during the semester		Regular weekly student load	
Unstructured SWL (h/sem)	81	Unstructured SWL (h/w)	6.5
Irregular student load during the semester		Irregular student load per week	
Total SWL (h/sem)	175		
The student's total academic load during the semester			

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)		
	Assignments	2	5% (5)		

	Projects / Lab.	2	10% (10)		
	Report	1	15% (15)		
Summative assessment	Midterm Exam	1 hr	10% (10)		
	Final Exam	4hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to organic chemistry, Chemical Bonding of Carbon
Week 2	Polar and Non-Polar Molecules – Single, Double, and Triple Bonds.
Week 3	Stereochemistry (Spatial Chemistry)
Week 4	- Nomenclature of Organic Compounds - Alkanes – Alkenes – Alkynes
Week 5	Preparation, Physical Properties, and Reactions.
Week 6	Preparation of Alkanes: 1-Dohl-Fischer Reduction 2-Kolbe Synthesis
Week 7	Cyclic Alkanes and a Brief Overview of Heterocyclic Compounds Aromatic Hydrocarbons
Week 8	First exam
Week 9	Benzene and the Nomenclature of Benzene Derivatives
Week 10	Reactions of Benzene – Preparation of Benzene Derivatives
Week 11	Classification of Organic Chemical Reactions

Week 12	Classification of Organic Reagents
Week 13	Preparation of Olefins 1. Hofmann Elimination
Week 14	2. Fritz–Völker Reaction
Week 15	Preparation for Final exam

Delivery Plan (Weekly lab Syllabus)	
	Material Covered
Week 1	Lab 1: Explanation of General Principles and Identification of Apparatus
Week 2	Lab2: Explanation of General Principles and Identification of Apparatus(part2)
Week 3	Lab 3: Measurement of Melting Point
Week 4	Lab 4: Measurement of Boiling Point (Simple Distillation)
Week 5	Lab5: Steam Distillation
Week 6	Lab 6: Fractional Distillation
Week 7	Lab 7: Recrystallization and Sublimation
Week 8	Lab 8: Recrystallization and Sublimation(part2)
Week 9	Mid exam
Week 10	Lab 10: Extraction
Week 11	Lab 11: Extraction (PART2)
Week 12	Lab 12: Preparation of Alkanes (Methane)

Week 13	Lab 13: Preparation of Alkenes (Cyclohexene)
Week 14	Lab 14: Preparation of Acetylene and Detection of Unsaturated Compounds
Week 15	Lab 15: Preparation for Final exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	د. ابراهيم نزار محمد د. داوود محمد خالد د. زكريا محمود مازن	yas
Recommended Texts	Morison and Boyd ,3 rd Edition	
Websites	Different websites	

Grading Scheme			
Group	Grade	Marks (%)	Definition
Success Group (50- 100)	A- Excellent	90- 100	Outstanding Performance
	B- Very Good	80- 89	Above average with some errors
	C- Good	70- 79	Sound work with notable errors
	D- Satisfactory	60- 69	Fair but with major shortcomings
	E- Sufficient	50- 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(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.			

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي



MODULE

DESCRIPTION FORM

Module Information					
Module Title	Biosafety and security			Module Delivery	
Module Type	Core			☒ Theory ☐ Lecture ☒ Lab ☒ Tutorial ☐ Practical ☒ Seminar	
Module Code	203 BIO1				
ECTS Credits	6				
SWL (hr/sem)	150				
Module Level	1		Semester of Delivery		
Administering Department	Biology		College	College of Sciences	
Module Leader	Dr.Hussein M. Abbas		e-mail	dr.hussein.mahmood@nahrainuniv.edu.iq	
Module Leader's Acad. Title	مدرس		Module Leader's Qualification	دكتوراه	
Module Tutor	Msc. Yasir K. Ibrahim		e-mail	Yasir.khaleel@nahrainuniv.edu.iq	
Peer Reviewer Name	Name		e-mail		
Scientific Committee Approval Date			Version Number	1.0	

Relation with other Modules			
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	Main objectives 1. Students will learn about the importance of biosecurity and biosafety, and the importance of the difference between the two terms. 2. Increase students' awareness and broad understanding of how to use laboratory equipment and follow the precautionary instructions for laboratory workers. 3. Increase students' knowledge of laboratory standards, their risks, and their medical importance. 4. Students will also learn about the most important laboratory chemicals and biological materials and the user instructions they contain, as stated in their descriptions.		
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	Unit 1: Introduction The student learns about • Key components of biorisk management. • Component of safety in all the laboratories. • Chemical safety and chemical segregation. • General safety precautions. Unit 2: Biosafety and Biosecurity Regulations The student learns about • Design, construction, commissioning and management of biosafety laboratories. • Management of infectious materials and pathogens. • Development of bio-containment equipment and materials.		

- Risk Assessment and Response.
- Biosafety and biosecurity in public health.
- Global health security.

Unit 3: Biosafety Barriers (in laboratory)

The student learns about

- Biosafety Barriers in Labs.
- Primary barriers
- Secondary barriers
- Procedural barriers
- Personnel barriers

Unit 4: Biosafety levels

- The student will learn about the biosafety levels.
- Students will learn about the four biosafety levels: BSL-1, BSL-2, BSL-3, and BSL-4, with BSL-4 being the highest containment level (maximum level).
- There are also additional rules and nomenclature for animal research (ABSL), agricultural research (BSL-Ag), and other types of research that students should be familiar with.
- Risk assessment strategy
- Risk group, Biosafety levels, practice and equipments
- Standard practices required in bio labs

Unit 5: Biological agents

- Routes of infection, - Basic of control measures
- Hazards groups classification system
- A biosafety cabinet (BSC)

Unit 6: Biorisk and Biohazards

- COSHH: Control of substances hazardous to health
- Assessing risk for work with blood and human tissues hazards
- Control measures for work with blood and human tissues.
- Containment level

Unit 7: Biorisk management system

- Assess the capability of the laboratory staff to control hazards.
- Relation of risk group to Biosafety levels: practice and equipments.

- Mitigation control measures.
- Sustainability of biorisk Management system.
- Strengthening biorisk management.

Unit 8: Types of biological wastes

- Categories of biological wastes
- Decontamination of biological wastes

Unit 9: Transportation of biological materials

- International transport regulation
- The basic triple packaging system

Unit 10: Documentation and Emergency Response

In this unit, the student should know about the following:

- Discuss accidents and near misses to prevent future accidents.
- Attend departmental safety committee meetings.
- Discuss safety topics periodically during lab.

Unit 11: Biosafety Training, Part 1

This unit includes several sections:

- Personal Protective Equipment
 - Biosafety Cabi
- nets
- Biosafety Retraining
 - Bloodborne Pathogens
 - Animal Biosafety

Unit 12: Biosafety Training, Part 2

- Sterilization Methods

Unit 13: Biosafety Training, Part 3

- Disposal of Biological Materials

Unit 14: Training on Biosafety Waste Sterilization and Disposal Equipment

- Autoclaves
- Ovens

	Unit 15: Comprehensive Review
Indicative Contents	The instructive content includes the following. - Introduction to Biosafety. - Basic concepts in biosafety and the importance of its application in the laboratory. - Biosafety is one of the most important standards in biological and chemical laboratories, given its direct contact with laboratory workers. - It is essential to train laboratory workers on the importance of biosafety and how to handle biological hazards. - Biosafety practices in laboratories are based on the principle of containing biological agents to prevent exposure of laboratory workers and the external environment. Primary containment protects laboratory workers and the surrounding environment from exposure to biological agents. - Biosafety is the safe work practices associated with handling biological materials, especially infectious agents. It addresses the principles, techniques, and containment practices applied to prevent unintentional exposure to pathogens and toxins, or their accidental release. Laboratory materials important: A safety data sheet (SDS), material safety data sheet (MSDS), or product safety data sheet (PSDS) is a document that lists information relating to occupational safety and health for the use of various substances and products.

Learning and Teaching Strategies	
Strategies	The teaching strategies used in biosafety and their expected outcomes in terms of knowledge acquisition and achievement of learning outcomes for students were as follows: 7. Competitive learning • Students work individually.

	- Students have common learning goals and tasks. 8. Individual learning - Students work individually and independently to achieve different individual learning goals and tasks that are not related to other students. 9. Collaborative learning - Students work in small groups. - Students share learning goals and tasks within the group that may be similar or different from other groups. - The teacher evaluates students on their work as groups and also on their individual work
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Student Workload (SWL)			
Structured SWL (h/sem)		Structured SWL (h/w)	
Regular student load during the semester	45	Regular weekly student load	5
Unstructured SWL (h/sem)		Unstructured SWL (h/w)	
Irregular student load during the semester	105	Irregular student load per week	5
Total SWL (h/sem)			
The student's total academic load during the semester	150		

Module Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
	Quizzes	2	10% (10)		

Formative assessment	Assignments	2	5% (5)		
	Projects / Lab.	2	10% (10)		
	Report	1	15% (15)		
Summative assessment	Midterm Exam	1 hr	10% (10)		
	Final Exam	4hr	50% (50)		
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction to biosafety and biosecurity
Week 2	Biosafety and Biosecurity Regulations
Week 3	Biosafety Barriers (in laboratory)
Week 4	Biosafety levels
Week 5	Biological agents
Week 6	Bio risk and Biohazards
Week 7	Types of biological wastes
Week 8	First exam
Week 9	Transportation of biological materials
Week 10	Documentation and Emergency Response
Week 11	Biosafety training
Week 12	Sterilization

Week 13	Disposal of Biological Materials
Week 14	Equipment Autoclaves Ovens
Week 15	Preparation for Final exam

Learning and Teaching Resources		
	Text	Available in the Library?
Required Texts	Laboratory Biosafety and Biosecurity Risk Assessment Technical Guidance Document	Online
Recommended Texts	Biological Safety: Principles and Practices https://onlinelibrary.wiley.com/doi/book/10.1128/9781555819637	Online
Websites	https://www.aam.org.ar/descarga-archivos/Laboratory-Biosafety-Biosecurity-Guidance.pdf	Website

Grading Scheme			
Group	Grade	Marks (%)	Definition
Success Group (50- 100)	A- Excellent	90- 100	Outstanding Performance
	B- Very Good	80- 89	Above average with some errors
	C- Good	70- 79	Sound work with notable errors
	D- Satisfactory	60- 69	Fair but with major shortcomings
	E- Sufficient	50- 59	Work meets minimum criteria

Fail Group (0 – 49)	FX – Fail	(45-49)	More work required but credit awarded
	F – Fail	(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.			

ملاحظة: هذا النموذج تم وضعه وتقديمه من قبل مديرية ضمان الجودة في وزارة التعليم العالي والبحث العلمي



FORM

MODULE DESCRIPTION

Module Information		
معلومات المادة الدراسية		
Module Title	Biostatistics	Module Delivery
Module Type	Core	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical
Module Code	BIO1204	
ECTS Credits	5	

SWL (hr/sem)	125		☐ Seminar
Module Level	Preliminary Studies	Semester of Delivery	2
Administering Department	Life Sciences	College	Faculty 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	2025	Version Number	1.0

نموذج وصف المادة الدراسية

Relation with others Mode العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	لا يوجد	Semester	الثاني
Co-requisites module	يوجد	Semester	الثاني

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

Module Aims المادة أهداف 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 المحتويات الإرشادية	Describe basic statistical terms relevant to the field of analytical science1- Introduction to statistical terms Population and samples Statistical description of data Display data graphically and summarize them numerically using appropriate2- tables, graphs, and measures of center, spread, and position. •Graphical representation of data including frequency tables and graphs •Explain and apply the concepts of basic statistical distributions3- •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	45	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعيا	2.2
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	80	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعيا	4.466
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	125		

Module Evaluation تقييم المادة الدراسي					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2	10% (10)	3, 8	LO #1, 2, and 3
	Assignments	2	10% (10)	6, 9	LO # 4 and 6
	Seminar	1	10% (10)	continuous	
	Report	1	10% (10)	12	LO # 5 and 7
Summative assessment	Midterm Exam	2 hr	10% (10)	5,10	LO # 1-5
	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	• Methods of presentation of data with application.
Week 3	• Measures of Central Tendency, Arithmetic Mean, mode, Median.
Week 4	• Measures of Variability, The Range, Variance and Standard Deviation
Week 5	• correlation.
Week 6	• Cumulative distribution.
Week 7	• Probability theory with application.
Week 8	• the one exam
Week 9	• permutation.
Week 10	• moment, skewness and kurtosis.
Week 11	• Introduction to Hypothesis Testing with application.
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", 7 th 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.	

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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.				

MODULE DESCRIPTOR FORM

نموذج وصف المادة الدراسية

Module Information المادة الدراسية معلومات		
Module Title	Human Rights and Democracy	Module Delivery
Module Type	Basic	☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial
Module Code	URDEM	
ECTS Credits	2	

SWL (hr/sem)	50		☐ Practical ☐ Seminar	
Module Level	First stage	Semester of Delivery		Second Semester
Administering Department	Biology	College	College of sciences	
Module Leader	Dr. Ahmed Neama Juda	e-mail	: ahmedjuda68@gmail.com	
Module Leader's Acad. Title		Module Leader's Qualification		University Doctor Assistant
Module Tutor	-	e-mail	-	
Peer Reviewer Name		e-mail		
Review Committee Approval		Version Number		

Prerequisite module		Semester	
Co-requisites module		Semester	
Module Aims, Learning Outcomes and Indicative Contents الإرشادية والمحتويات التعلم ونتائج الدراسة المادة أهداف			
Module Aims الدراسة المادة أهداف	The aim of human rights and democracy lectures is to simplify the principles of human right and to assure democracy disciplines applying by equally and properly distribution among people in the society.		

Module Learning Outcomes مخرجات التعلم للمادة الدراسية	A- Cognitive objectives: A1- Introducing the student to the principles of human rights. A2- Briefly introduce the student to the nature of human rights and freedoms and the nature of democracy and its types. A3- Comprehensive knowledge of human rights and basic freedoms in light of the existing reality and types of political systems and states. A4- Introducing the bullying stereotype and the Iraqi historical performance in Iraqi governments in the ancient and modern era. B- The skills objectives of the course: B1- Introducing the student to human rights and freedoms and how to deal with international and regional treaties and their internal legislation. B2- Deriving knowledge related to human rights and how they are reflected and their true civilizational role in the lives of peoples. B3- Knowing how different governments and ideologies deal with human rights and democracy in practice in countries of the world.
Indicative Contents المحتويات الإرشادية	
Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	This is done through a booklet that was prepared by me using external sources such as books, newspapers, and the information network, through in-person lectures, and
	supporting this with illustrative means in Word or PDF format. It is carried out through weekly lectures and through observations made by the teacher and measuring the extent of students' knowledge.
Student Workload (SWL) الحمل الدراسي للطالب	

Structured SWL (h/sem) الفصل خلال للطالب المنتظم الدراسي الحمل		Structured SWL (h/w) أسبوعي للطالب المنتظم الدراسي الحمل	
Unstructured SWL (h/sem) خلال للطالب المنتظم غير الدراسي الحمل الفصل		Unstructured SWL (h/w) أسبوعي للطالب المنتظم غير الدراسي الحمل	
Total SWL (h/sem) الفصل خلال للطالب الكلي الدراسي الحمل			

Module Evaluation الدراسية المادة تقييم					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	Quizzes	2 times	10 marks		
	Assignments	once	20 marks		
	Seminars / Lab.				
	Report	once	10 marks		
Summative assessment	Midterm Exam	once	10 marks		
	Final Exam	once	50 marks		
Total assessment			100 marks		

Delivery Plan (Weekly Syllabus)	
المنهاج الاسبوعي النظري	
	Material Covered
Week 1	Concepts about human rights and fundamental freedoms.
Week 2	Categories and Features of Human Rights.
Week 3	Characteristics and advantages of human rights in Islam.
Week 4	The difference between human rights and public freedoms.
Week 5	Freedom, its concept and types.

Week 6	Human rights In ancient civilizations (Mesopotamia civilization) .
Week 7	Human rights in ancient civilizations (Chinese, Hindu, Pharaonic and Greek Egypt) .
Week 8	Human rights in the heavenly religions (Christianity and Islam).
Week 9	Human rights in the Middle Ages.
Week 10	Human rights in the modern era and the international organizations responsible for implementing them.
Week 11	The concept of democracy and it's characteristics.
Week 12	Types of democracy.
Week 13	Pictures of democratic systems.
Week 14	Democratic political rights.
Week 15	Final Exam

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	1.Universal Declaration of Human Rights (Drafting Committee of the Universal Declaration of Human Rights). 2. Human Rights (Thomas Paine). 3.Human rights in Islam (Ali Abdul Wahid).	Not available
Recommended Texts	Human rights in the Arab world (Hussein Jameel).	Not available
Websites		

APPENDIX:

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

Success Group (50- 100)	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

نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	اللغة العربية		Module Delivery
Module Type	Basic		☒ Theory ☐ Lecture ☐ Lab ☐ Tutorial ☐ Practical ☐ Seminar
Module Code	URARA		
ECTS Credits	2		
SWL (hr/sem)	50		
Module Level	UGx11	Semester of Delivery	
Administering Department	علوم حياة	College	كلية العلوم
Module Leader	Omar Adnan	e-mail	omar.adnan@nahrainuniv.edu.iq
Module Leader's Acad. Title	أستاذ مساعد	Module Leader's Qualification	MSc
Module Tutor		e-mail	
Peer Reviewer Name		e-mail	
Scientific Committee Approval Date	2025	Version Number	

Relation with others Mode العلاقة مع المواد الدراسية الأخرى
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Prerequisite module	لا يوجد	Semester	الثاني
Co-requisites module	لا يوجد	Semester	الثاني

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims المادة أهداف الدراسية	1. تغطية أساسيات اللغة العربية 2. معرفة أقسام 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 الآخرين.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	المعرفة والفهم حيث يجب ان يكون الخريج قادر على معرفة وفهم ما يأتي: 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 الأكاديمي أو المهني أو الاجتماعي 4. قدرة الطالب على قراءة وتحليل النصوص الأدبية والأكاديمية باللغة العربية ليسهل عليهم اجراء البحوث وكتابة الأوراق البحثية بشكل مناسب 5. الاستعداد للحياة المهنية من خلال قدرة الطالب على استخدام اللغة العربية بالترجمة والتعليم والعلاقات العامة أو أي مجال آخر يتطلب التواصل باللغة العربية
Indicative Contents المحتويات الإرشادية	

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	1. أسلوب المحاضرات والتطبيق بالأمثلة 2. نظام الواجبات البيتية والسمنار
Student Workload (SWL) الحمل الدراسي للطالب	

Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	30	Structured SWL (h/w) الحمل الدراسي المنتظم للطالب أسبوعياً	
Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	20	Unstructured SWL (h/w) الحمل الدراسي غير المنتظم للطالب أسبوعياً	
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
	Seminar	1	10% (10)	Continuous	
	Report	1	10% (10)	13	LO # 5, 8 and 10
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO # 1-7
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus) المنهاج الأسبوعي النظري	
	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	كان واخواتها (النواسخ)
Week 9	إن واخواتها
Week 10	ان واخواتها 2
Week 11	علامات التنقيط مع رسم الهمزة
Week 12	اختبار ١٥
Week 13	العدد
Week 14	صفة-العطف-التوكيد-البذل (التوابع)
Week 15	الامتحان النهائي

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	Available in the Library?
Required Texts	شرح ابن عقيل	كلا
Recommended Texts	الادب الجاهلي \ شوقي ضيف البيان والتبيين\ الجاحظ	كلا
book		
Websites		

Grading Scheme مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
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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

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