

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2026-2025

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

وزارة التعليم العالي والبحث العلمي
جهاز الإشراف والتقويم العلمي
دائرة ضمان الجودة والاعتماد الأكاديمي

استمارة وصف البرنامج الأكاديمي للكليات والمعاهد

اسم الجامعة : ديالى
الكلية/ المعهد: التربية للعلوم الصرفة
القسم العلمي : علوم الحياة
اسم البرنامج الأكاديمي او المهني : بكالوريوس علوم حياة / تربية علوم حياة
اسم الشهادة النهائية : بكالوريوس في تربية علوم الحياة
النظام الدراسي : سنوي
تاريخ اعداد الوصف : ٢٠٢٥-٢٠٢٦
تاريخ ملئ الملف :

التوقيع :
اسم المعاون العلمي : أ.د. خنساء سلمان فرمان
التاريخ :

التوقيع :
اسم رئيس القسم : أ.د. ذكرى عطا ابراهيم
التاريخ :

دقق الملف من قبل
شعبة ضمان الجودة والأداء الجامعي
اسم مدير شعبة ضمان الجودة والأداء الجامعي : أ.م.د. ارشد ادهم احمد
التاريخ
التوقيع

مصادقة السيد العميد



1. Program Vision

Diyala University seeks scientific leadership, excellence and creativity in the fields of higher education and scientific research to serve the community and enhance its local, regional and international standing to reach the highest levels of quality and international accreditation.

2. Program Mission

Providing effective academic university education through continuous development of academic programs in many specializations in light of the requirements of development plans to serve the labor market and contribute to promoting sustainable development.

3. Program Objectives

- 1- Explaining the chemical properties of atoms and elements
- 2- Explaining chemical equilibrium
- 3- Developing students' knowledge of the types of chemical reactions
- 4- Introducing students to volumetric and weight analysis
- 5- Introducing students to stereochemistry

4. Program Accreditation

No, it has not yet received accreditation.

5. Other external influences

There is no sponsor to the program.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	1	2		
College Requirements	1	2		
Department Requirements	1	2		
Summer Training	0	0		
Other	Basic			

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours
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2023-2024	General Chemistry CH11	General Chemistry CH11	theoretical	practical
			42	22

8. Expected learning outcomes of the program	
Knowledge	
1-Learning Outcomes	A- Cognitive objectives 1- Enabling students to obtain knowledge through understanding general chemistry 2- Enabling students to obtain knowledge through external sources A3- Enabling students to obtain knowledge through preparing scientific reports 4- Enabling students to obtain knowledge by following the latest scientific publications and research
Skills	
2-Learning Outcomes	B - The skills objectives of the course. 1- Teaching students how to prepare solutions 2 - Enabling students to determine the weight of solutions and compounds 3 - Enabling students to prepare alkynes 4- Enabling students to understand organic chemistry and its compounds
- General and qualifying transferable skills (other skills related to employability and personal development). 1- Using modern sources while studying. 2- Benefiting from research centers 3- Developing students' skills to use libraries and the Internet 4- Benefiting from libraries	1- Cognitive objectives 2- The basic concepts of analytical and organic chemistry. 3- Enabling students to obtain knowledge and understanding of general chemistry. 3- Acquiring theoretical and practical skills in general chemistry
Ethics	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

9. Teaching and Learning Strategies
Developing learning outcomes in various areas of learning for each of the learning areas shown below 1- It provides a quick summary of the knowledge or skills that the course seeks to develop. 2- Description of the teaching strategies used in the course in order to develop that knowledge or skills. 3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study.

10. Evaluation methods

- 1- Oral questions during the lesson
- 2- Daily tests
- 3-Monthly tests

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
An assistant Lecturer	Chemistry	Physical Chemistry	☐ Teaching Experience at the chemistry department in the College of Education and Pure Science- University of Diyala •Because I graduated with honor (with the highest average marks among my colleagues), I was employed in the same college that I graduated from. •Over 10 years of chemistry undergraduate laboratory teaching. •Lab Courses		1	

			that I taught: Introduction to Chemistry, College Chemistry Laboratory I, Organic laboratories for (level I, II, III, IV), Analytical laboratories for (level I, II, IV), and Physical laboratories for (level II, III). •In addition, assisting professors with pre-lab lectures, instructive handouts, and quizzes along with grading the lab reports and weekly quizzes, mid-term and final examinations. •Assisting and monitoring undergraduate students performing various instructive experiments.			
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Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(central admission)

13. The most important sources of information about the program

Organic chemistry for life sciences students. (Dr. Fahd Ali Hussein)

14. Program Development Plan

- Using computers in studies

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

First stage

1. Course Name:
English language
2. Course Code:
EN11
3. Semester / Year:
Annual
4. Description Preparation Date:
2023–2024
5. Available Attendance Forms:
Imperative

6. Number of Credit Hours (Total) / Number of Units (Total)

60 h/2U

7. Course administrator's name (mention all, if more than one name)

Name: lecturer. Dr. Antsar Ahmed Abbas
Email: intisarm1978@yahoo.com

8. Course Objectives

Course Objectives

- Enabling students to know the tenses and how deal with them.
- The student is able to understand English vocabulary in addition to being able to express in English language.
- Enabling students by preserving scientific terminology.

9. Teaching and Learning Strategies

Strategy

- Applying the theoretical aspect to reality through examples, group discussion and dialogue, as well as the preparation of daily and monthly Reports and tests.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2-3	2	The student understands what he received with the lecture	Reading: How to read	Presentation and lecture	Class questions
4-5-6	2	The student understands what he received with the lecture	Daily Routine: Work and Stress	Presentation and lecture	Class questions

			Anticipate and guess content. And quick reading to get the general idea of the topic		
7		exam			
8-9-10	2	Learn about how form correct sentences by using the pattern.	Grammar: -present simple tense. -the present progressive.	Presentation and lecture	Class questions
11-12-13	2	The student understands what he received with the lecture.	People and Environment: How to read. Meaning of conjecture content for new vocabulary	Presentation and lecture	Class questions
14	2	Exam			
15-16-17	2	The student understands what he received with the lecture	Architecture: - The work of observations of intensive study. - Preparing and naming scientific charts. - Find information	Presentation and lecture	Class questions
18-19-20	2	The student understands what he received with the lecture.	Education: -Expect and guess content. -Connecting ideas	Presentation and lecture	Class questions
21		Exam			
22-23-24	2	Learn about how form correct sentences by using the pattern	Grammar: -the past simple tense. -the past continuous tense	Presentation and lecture	Class questions
25-26-27	2	The student understands	Technology:	Presentation and lecture	Class questions

		what he received with the lecture	- Obtaining information from websites. - Work a summary of information by quick reading. - Use visuals on websites to obtain expanded information through charts and images.		
28-29	2	The student understands what he received with the lecture	Some scientific definitions of biology.	Presentation and lecture	Class questions
30		Exam			
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Headway: academic skills: Reading writing and study skills, level 1		
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites			websites		

Arabic language

1. Course Name:	
Arabic language	
2. Course Code:	
108 GAR	
3. Semester / Year:	
I	
4. Description Preparation Date:	
2024-2023	
5. Available Attendance Forms:	
My attendance is mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hours/4 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Muhammad Jassim Nasser Email: mohammednaser@uodiyala.edu.iq	
8. Course Objectives	
Course Objectives	- Enabling students to understand the concept of speech and speech - Distinguishes name signs - 3- Distinguish the signs of the verb

		- 4- Understands letter signs - 5- He explains the Farewell Pilgrimage sermon			
9. Teaching and Learning Strategies					
Strategy		- Learning strategy until mastery. - How to solve problems. - Inductive method.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Enabling students to become familiar with the mother tongue	Introduction to the Arabic language	Presentation and interrogation	Discussion
2	2	He learns how to read the Qur'an correctly and adjust the end of it	Reading the Holy Quran	Presentation and interrogation	Daily exam
3	2	Enabling students to know the concept of the word	Word concept	Presentation and interrogation	report
4	2	Recognizes the concept of speech	Concept of speech	Presentation and interrogation	Daily exam

5		Exam			
6	2				Share
7	2	Can divide speech	Sections of speech	Presentation and interrogation	report -Discussion
8	2	The student understands name signs	Name tags	Presentation and interrogation	Daily exam
9	2	Can divide speech	Sections of speech	Presentation and interrogation	Discussion
10	2	Exam			
11	2	Enabling students to know igneous rocks	prepositions -Vowels	Presentation and interrogation	Share
12	2	Enabling students to know punctuation marks	punctuation marks	Presentation and interrogation	Daily exam
13	2	The student learns how to express	Parsing	Presentation and interrogation	Discussion
14	2	The student learns how to write a composition and what are the main rules for writing it	Construction	Presentation and interrogation	Share
15	2	Explain what the letter signs are	Character signs	Presentation and interrogation	Discussion
16	2	Exam			
17	2	2	Enabling students to know punctuation marks	punctuation marks	Presentation and interrogation
18	2	2	The student learns how to express	Parsing	Presentation and interrogation
19	2	2	The student learns how to composition and what write a are the main rules for writing it	Construction	Presentation and interrogation
20	2	The concept The student knows of Arabic literature	The concept of Arabic literature	Presentation and interrogation	
21	2	metamorphic The importance of	Departments of Arabic	Presentation and	

		rocks	Literature	interrogation	
22	2	The student learns about examples of metamorphic rocks	Farewell Hajj sermon	Presentation and interrogation	
23	2	and The student knows the soil its components	hair the	Presentation and interrogation	Daily exam
24	2	Explains the life of Ibn Khaldun	Ibn Zaydoun, his life	Presentation and interrogation	Share
25	2	Explains the life of Ibn Khaldun	Ibn Zaydoun, his life	Presentation and interrogation	Discussion
26	2	Exam			
27	2	The student gets to know the similar tools	Its simile tools and sections	Presentation and interrogation	Share
28	2	The The student gets to know most prominent Arabic proverbs	Proverbs and rulings and their impact on Arabic literature	Presentation and interrogation	Discussion
29	2	the solar The student compares and lunar letters	Solar and lunar lam	Presentation and interrogation	Discussion
30	2				exam Daily
11. Course Evaluation					
-25 marks for the monthly exam, first semester -25 marks for the monthly exam, second semester - 50 marks for the final exam.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Explanation of Ibn Aqeel, History of Arabic Literature, Sha Deif		
Main references (sources)					
Recommended books and references (scientific journals, reports...)			Website of Iraqi scientific academic journals http://www.iasj.net		
Electronic References, Websites			website of the Central Library - University of Diyala. https://uodiyala.edu.iq		

Cell biology

13. Course Name: Cell biology	
14. Course Code: C11	
15. Semester / Year: Yearly	
16. Description Preparation Date: 2023-2024	
17. Available Attendance Forms: Mandatory	
18. Number of Credit Hours (Total) / Number of Units (Total) 60 hours	
19. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ali Jaffar Saleem Email: ali.saleem@uodiyala.edu.iq	
20. Course Objectives	
Course Objectives	Understand the concept of cell science Methods used in studying the cell Understand the functions of cell components
21. Teaching and Learning Strategies	

Strategy		Problem solving method Inductive method Self-learning method			
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learn about the basics of cell science	General introduction	Diction and Questioning In all lectures	Oral test
2	2	Understanding cellular theory and its development	cell theory		Preparing reports
3	2	The difference between prokaryotic and eukaryotic cells	prokaryotic and eukaryotic cells		Homework
		Understanding viruses	viruses		In all lectures
4	2	Identify the chemical components of the cell	chemical components of the cell		
5	2	Learn about the role of water in the cell	water		
		Identify amino acids, proteins and enzymes	amino acids, proteins and enzymes		
6	2	Identify carbohydrates and fats	carbohydrates and fats		
7	2	Understand the structure and functions of the cell membrane	cell membrane		
		Knowing the types of cellular vacuoles	vacuoles		
8	2	Knowing of the structure and functions of mitochondria	mitochondria		
9	2	Knowing of the structure, functions and types of plastids	plastids		
10	2	Understanding the role of ribosomes and endoplasmic reticulum	ribosomes and endoplasmic reticulum		
11	2	Learn about cellular transport methods	cellular transport		
12	2	Exam	Exam		
13	2	Learn about cell study methods	cell study methods		
14	2	Know the types of microscopes	microscopes		
15	2	Knowing of the cell nucleus and its function	cell nucleus		
16	2	Know the contents of the nucleus	nucleus structure		
17	2	Comparison between mitosis and meiosis	mitosis and meiosis		
18	2	How are genetic traits transmitted?	genetic traits		
19	2	Learn about the basics of bio applications	bio applications		
		Knowing of biotechnology	biotechnology		
19	2	Learn about genetic engineering	genetic engineering		

20	2	Learn about some applications of genetic engineering	bio applications		
21	2	Distinguishing between live cells and dead cells	biotechnology		
22	2	How to prepare the swab	genetic engineering		
23	2	Learn about modern methods in studying the cell	applications of genetic engineering		
24	2	General Review	live cells and dead cells		
25	2	Exam			
26	2		prepare the swab		
27	2		modern methods in studying the cell		
28	2		General Review		
29	2		Exam		
30	2				
23. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
25% written exams 5% daily oral 4% reports 16% lab 50% final written exam					
24. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Cell biology(1989) Saad Taj Al-Din		
Main references (sources)			Introduction to essential cell biology(2010) Ckreoconnor		
Recommended books and references (scientific journals, reports...)			Theses and scientific journals		
Electronic References, Websites			IraqiAcademi Scientific Journals https://www.iasj.net/		

Geology

13. Course Name:					
Geology					
14. Course Code:					
G11					
15. Semester / Year:					
Annual					
16. Description Preparation Date:					
2023-2024					
17. Available Attendance Forms:					
mandatory					
18. Number of Credit Hours (Total) / Number of Units (Total)					
60 h/4 U					
19. Course administrator's name (mention all, if more than one name)					
Name: Asst. Asst. Dr. Hind tahir qadir Email: hind.tahir.qadir@uodiyala.edu.iq					
20. Course Objectives					
Course Objectives		-1 Enabling students to know igneous, sedimentary and metamorphic rocks 2-Enabling students to know the Earth's covers 3-Students' knowledge of the importance of studying fossils 4- Students' knowledge of the Earth's movements and the theories that explain the Earth's movement 5- Students' knowledge of minerals, their origin and classification *Enabling students to know igneous, sedimentary and metamorphic rocks *Enabling students to know the Earth's covers *Students' knowledge of the importance of studying fossils *Students' knowledge of the Earth's movements and the theories that *explain the Earth's movement *Students' knowledge of minerals, their origin and classification			
21. Teaching and Learning Strategies					
Strategy		• Conduct a set of daily and monthly tests to evaluate the student's understanding • Asking students to make reports on the study material			
2. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Enabling students to know the basics of earth science Explains the branches of earth science	Introduction to earth science Earth science / branches of earth science	Presentation and lecture	Class questions

2	2	Enabling students to know the most important divisions and covers of the Earth	Land/Earth Covers - Land divisions	Presentation and lecture	Class questions
3	2	The student knows metals	Components of the Earth's crust - minerals	Presentation and lecture	Class questions
4	2	Enabling students to know the physical and chemical nature of the Earth	Chemical and physical components of the Earth's crust	Presentation and lecture	Class questions
5	2	Exam			
6	2	Students understand the importance of water and how to preserve the secret of life	Physical properties of minerals	Presentation and lecture	Class questions
7	2	The student distinguishes between carbohydrates and amino acids	Complementary physical attributes	Presentation and lecture	Class questions
8	2	Enabling students to know igneous rocks	Rocks/igneous rocks	Presentation and lecture	Class questions
9	2	Enabling students to know sedimentary rocks	sedimentary rocks	Presentation and lecture	Class questions
10	2	Exam			
11	2	Enabling students to know sedimentary rocks	Sedimentary rock supplement	Presentation and lecture	Class questions
12	2	Enabling students to distinguish sedimentary rocks	Examples of sedimentary rocks	Presentation and lecture	Class questions
13	2	The student compares sedimentary and igneous rocks	Comparison between sedimentary and igneous rocks	Presentation and lecture	Class questions
14	2	he student knows metamorphic rocks	Metamorphic rocks	Presentation and lecture	Class questions
15	2	Exam			
16	2	Presentations		Presentation and lecture	Class questions
17	2	The importance of metamorphic rocks	Metamorphic rock supplement	Presentation and lecture	Class questions
18	2	The student learns about examples of metamorphic rocks	Examples of metamorphic rocks	Presentation and lecture	Class questions
19	2	The student knows the soil and its components	Soil/soil components	Presentation and lecture	Class questions
20	2	The student understands the movement of the earth	Earth's movement	Presentation and lecture	Class questions
21	2	Exam			
22	2	Understands the movement of the Earth	Ground movement	Presentation and lecture	Class questions
23	2	The student learns the importance of fossils and fossils	Fossils and fossils and their importance	Presentation and lecture	Class questions
24	2	Factors affecting terrain and its origin	Climate, air, water and wind	Presentation and lecture	Class questions
25	2	The student learns the basic information about earthquakes and their causes	Earthquakes/their causes	Presentation and lecture	Class questions
26	2	Exam			
27	2	The student learns about earthquakes, faults, and joints The student compares the intensity and strength of earthquakes	Earthquakes/faults/breaks The difference between the intensity and strength of earthquakes	Presentation and lecture	Class questions
28	2	The student learns about the factors of soil formation	the process of moving rock into soil	Presentation and lecture	Class questions
29	2	Biological factor or living organisms	The influence of living organisms on soil formation and formulation of its characteristics	Presentation and lecture	Class questions
30	2	Exam			

23. Course Evaluation

istributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports tc	
24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Earth science geology. Muhammad Reda Ibrahim
Main references (sources)	Internet sites, the website of the College of Education for Pure Sciences www.puresci.uodiyala.edu.iq The website of the Central Library, University of Diyala, http://www.uodiyala.edu.iq Iraqi academic journals website http://www.iasj.net
Recommended books and references (scientific journals, reports...)	websites
Electronic References, Websites	Internet sites, the website of the College of Education Pure Sciences www.puresci.uodiyala.edu.iq The website of the Central Library, University of Diyala http://www.uodiyala.edu.iq

General Chemistry

25. Course Name: General Chemistry CH11	
26. Course Code: General Chemistry CH11	
27. Semester / Year:2023-2024	
2023-2024	
28. Description Preparation Date:	
1/9/2023	
29. Available Attendance Forms: Attendance	
Attendance	
30. Number of Credit Hours (66) / Number of Units (2)	
31. Course administrator's name (mention all, if more than one name)	
Name: Mustafa Khalid Mohammed Email: mostafa.khalid.mohammed@uodiyala	
32. Course Objectives	
Course Objectives	- Explaining the chemical properties of atoms and elements

- 2- Explaining chemical equilibrium
- 3- Developing students' knowledge of types of chemical reactions
- 4- Introducing students to volumetric and weight analysis
- 5- Introducing students to stereochemistry

33. Teaching and Learning Strategies

Strategy	Developing learning outcomes in various areas of learning for each of the learning areas shown below 1- It provides a quick summary of the knowledge or skills that the course seeks to develop. 2- Description of the teaching strategies used in the course in order to develop that knowledge or skills. 3- The methods used to evaluate the student in the course to evaluate the learning outcomes in this field of study. 4- Evaluation is done through extracurricular activities, written exams, oral exams, and reports, and the lecture method is used for teaching.
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34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first week	2	Enabling students know the most important chemists and their history	Introduction to chemistry	Presentation and interrogation	
second week	2	Enabling students know the properties of atoms	Periodic properties of atoms	Presentation and interrogation	
the third week	2	Enable students to know how to read periodic table	Classification of elements in Periodic Table	Presentation and interrogation	
fourth week	2	Enabling students understand how to arrange electrons	Electron arrangement in the periodic table	Exam	
The fifth week	2	Exam		Presentation and interrogation	
		Enabling students know ionic balance	Chemical equilibrium	Presentation and interrogation	

the six week	2	Enabling students know ionic balance and perform the necessary dilutions	and the law of mass action	Presentation and interrogation	
The seventh week	2		Ionic balance		
		Enabling students know ways of expression	pH function calculation		
The eighth week	2	Concentration and calculation of buffer solution	Common ion action - buffer solution pH calculation	Exam	
		Exam	Exam	Presentation and interrogation	
The ninth week	2	Understands the characteristics of aggregate analysis	Volumetric analysis Ways to express focus	Presentation and interrogation	
The tenth week	2	Enumerates ways to express focus	Standard solutions, standard materials	Presentation and interrogation	
The eleventh week	2	Detects standard solutions	Neutralization reaction and indications used	Presentation and interrogation	
			Exam		
The twelfth week	2	Interprets interaction using the evidence use	Review the end of the first semester		
		Exam	Weight-factor analysis	Exam	
The thirteenth week	2	Review the end of first semester	Weight and calculations	Review the end of the first semester	
			Spectroscopy -		
The fourteenth week	2	Enabling students interpret weight analysis	Lambert's law	Presentation and interrogation	
			Organic Chemistry -		
			Introduction		
			Chemical bonding of		
the week		Enabling students know spectroscopy	carbon compounds	Presentation and interrogation	
Fifteen	2	and Lambert's law	Exam		
			Stereochemistry		
			Organic compounds	Presentation and interrogation	
	2	Enabling students know what organic chemistry is	Alkanes - Alkenes -		
			Their preparation		
			Alkanes - Alkenes -		
			Physical properties -		
			Alkanes - Alkenes -		
	2	Enabling students know the connection Chemistry and polymers	Their interactions		
			Conducting experiments for students to gain an understanding of	Presentation and	

	2	Exam	chemical processes	interrogation	
	2	Knows stereochemistry	Exam Aromatic hydrocarbons Benzene derivatives and their reactions	Presentation and interrogation	
	2	Enable students to name organic compounds	Spectroscopy - Lambert's law	Presentation and interrogation	
	2	Enable students to name organic compounds	Organic Chemistry - Introduction	Presentation and interrogation	
	2	Characterizes the physical properties of organic compounds	Chemical bonding of carbon compounds	Presentation and interrogation	
	2	Shows the reactions of organic compounds	Exam Stereochemistry Organic compounds	Presentation and interrogation	
	2	Conducting experiments for students to gain an understanding of chemical processes	Alkanes - Their preparation Alkenes - Their preparation Physical properties - Alkanes - Alkenes - Their interactions	Exam	
	2	Students identify what hydrocarbons are	Conducting experiments for students to gain an understanding of chemical processes	Presentation and interrogation	
	2	Enable students to name Benzene derivatives and their reactions	Exam Aromatic hydrocarbons Benzene derivatives and their reactions	Presentation and interrogation	
	2				
	2				

				Exam	
	2			Presentation and interrogation	
	2			Presentation and interrogation	
	2			Presentation and interrogation	
	2			Exam	
	2			Review the end of second semester	
	2				

35. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation = 5, monthly = 40, final written = 50, and reports = 5.

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Organic chemistry for life sciences students. Fahd Ali Hussein
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Theses, dissertations and scientific journals
Electronic References, Websites	

General biology

37. Course Name:	
General biology	
38. Course Code:	
General biology	
39. Semester / Year:	
The first stage	
40. Description Preparation Date:	
2022-2023	
41. Available Attendance Forms:	
Daily attendance	
42. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours theory + 2 hours practical - 6 units)	
43. Course administrator's name (mention all, if more than one name)	
Name: Assist. Prof. Dr. Adawia Fadhil Abbas Alzubaidi Email: adwa_a2000@yahoo.com	
44. Course Objectives	
Course Objectives	• Introducing the student to the concept of general biology • Introducing the student to the basics of biology and will discuss the history importance of biology • Identify the branches of biology • Identify the characteristics and features of living organisms • Description of the living cell, its types, shapes, and organelles • Identify its living and non-living components

	• Identify the metabolic processes carried out by the cell. The life cycle of the cell and its divisions – • The student will also study plant and animal tissues, their components and functions • This course will also be presented
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45. Teaching and Learning Strategies

Strategy	A- Cognitive objectives 1 Introduction to general biology 2 Reviews the manifestations of life in living organisms and the characteristics of living matter and its chemical components. 3 Explains the difference in cellular structure in prokaryotic and eukaryotic cells and cellular structures in living organisms 4 It links the structures and organelles of a living organism and the vital functions they perform 5 Analyze the results through a comparison between prokaryotic and eukaryotic organisms B - The skills objectives of the course. 1 - Learn about the concepts, terminology, branches of biology, its theories, and the contributions of ancient civilizations to the advancement of biology. 2 - Explains the difference in cellular structure between prokaryotic and eukaryotic cells and the cellular structures in living organisms 3 - The student learns about the vital processes in living organisms C- Emotional and value-based goals 1) He works flexibly and effectively within a team and develops his ability to dialogue and discuss. 2) Commitment to the ethics of the educational institution 3) Commitment to the ethics of the medical and health professions and respect for the patient suffering 4) Enhancing the cognitive spirit Teaching and learning methods 1. Theoretical and practical lectures 2. Training students in hospitals, educational laboratories, and schools to teach the subject 3. Adopting video lectures to increase knowledge D - Transferable general and qualifying skills (other skills related to employability and personal development). 1. The student will be able to understand parasites and the diseases that can occur when infected 2. Use the easiest and quickest methods to diagnose diseases caused by parasites 3. Using cognitive information to guess the disease and the location of the examination or sample collection 4. Coordination with the treating physician to follow up on the patient Teaching and learning methods 1. Lectures 2. Use DATASHOW 3. Use means of explanation inside the hall 4. LECTURE INTERACTIVE - Evaluation methods 1. Quarterly and annual exams 2. QUIZ 3. Seminars 4. Attendance 5. Class activity
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46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Cognitive	1- Introduction to Biology, a historical overview of the development of biology, the importance of	the blackboard Display Screen	Daily exams Oral exams

2			of biology, branches of biology 2- Characteristics of living organisms and the main method of construction of materials 3- Living for the main organic compounds in living organisms	Videos Electronic class	the exam In elect classes Monthly exams
3			4- Classification, taxonomic stages of living organisms, classification systems, foundation of plant classification,		
4			5- Foundations of animal classification, classification systems, taxonomic ranks		
5			6- Hormonal coordination, hormonal coordination in animals; basic characteristic hormones, hormonal regulation in humans		
6			7- Functions of hormones, hormonal regulation in humans, endocrine system, types of endocrine glands,		
7			8- Half year holidays 9- Hormonal coordination in plants, the most important plant hormones		
8			10- Evolution, division of organisms based on their varying evolutionary paths, evolution of vertebrates		
9			11- Behavior, factors affecting behavior, reception and action in the nervous system,		
10			12- Types of behavior the difference between innate behavior and acquired behavior is monotony or rhythm		
11			13- The biological clock, behavior in plants, behavior in animals,		
12			14- Environmental behaviors, the role of behavior in regulating the livelihood of animals		
13			15- Migration, periodic migrations, types of migration, reasons for migration		
14			16- Migration requirements, migration motivation, animals, migration dangers		
15			17- Ecology, ecosystem, ecosystems,		
16			18- The relationship between different species, soil and air,		
17			19- Light, biosphere, food chains and food webs		
18					
19					
47. Course Evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams...etc. (25 first semester, 25 second semester (total such as daily preparation, daily, oral, monthly, and written exams) 50 final exams					
48. Learning and Teaching Resources					
Required textbooks (curricular books, if any)				NON	

Main references (sources)	Introduction to general biology Biology_Peter H. Riffen_et al
Recommended books and references (scientific journals, reports...)	Internet
Electronic References, Websites	W H O, jawetz medical microbiology 29th edition

Lecturer

Assist. Prof. Dr. Adawia Fadhil Abbas Alzubaidi

Course Description Form

1. Course Name:					
Educational psychology					
2. Course Code:					
CsDp 217					
3. Semester / Year:					
yearly					
4. Description Preparation Date:					
2023 / 2024					
5. Available Attendance Forms:					
mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours / Number of Units (4)					
7. Course administrator's name (mention all, if more than one name)					
Name: M.Ed. OMAR HAMID ABED					
Email: omarhamid@uodiyala.edu.iq					
8. Course Objectives					
Course Objectives		Introducing students to the concept of educational psychology/its memory and learning /components/learning theories And its branches Motivation /thinking/feedback /effective teaching/			
9. Teaching and Learning Strategies					
Strategy		presentation method - interrogation - delivery - Lecture			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 st	2	Knows educational psychology	Introduction to educational psychology/its trends	Modified lecture Discussion -	
2 nd	2	Explains educational psychology	branches/topics/ Its components/system	Diction	-Exam Reports
3 rd	2	Defines learning theories	/Learning theories /influencing factors	Diction	Reports

			Learning theories (trial and error, classical (conditioning		
4 th	2	Compares operant ,conditioning gestalt, social learning, and meaningful learning	A continuation of the topic of learning theories operational conditioning,) gestalt, social learning, meaningful learning	Diction	the duty
5 th	Exam				
6 th	2	The student knows memory and learning memory Explains ,operations And forgetting	Memory and learning, its importance in memory Human life / memory processes, remembering and forgetting	Diction	Participatio Reports -n
7 th	2	Compares classroom teaching/learning -Cooperative/self learning	teaching Classroom cooperative learning/ Self teaching/	Diction	Participatio Reports -n
8 th	2	The student applies learning by modeling	Modeling learning/educational anecdotes	Interrogation	Share
9 th	2	The student explains mental abilities/intelligence/creativity	Mental abilities / intelligence / creativity / characteristics of creative people / developing creativity skills	Presentation and interrogation	-Discussion modified lecture
10 th	Exam				
11 th	2	Compares creativity and intelligence	intelligence Creativity and	Diction	Share
12 th	2	Compares creativity and achievement	Creativity and achievement	Diction	Exam
13 th	2	Identify and classify motivation	Motivation/definition/ Classification/motivation Learning	Diction	Share
14 th	2	Explains the role of motivation in learning	The role of motivation in learning/achievement motivation	Interrogation	Share
15 th	2	Compares theories of motivation/motivati on theory	Motivation theories/motivation theory	Interrogation	Share
16 th	Exam				
17 th	2	explains The student the importance of theories Cognitive/humanisti	Cognitive theories/humanistic theories	Diction	Share

		c theories			
18 th	2	Enumerate the types of motivations	Types of motivation	Diction	Share
19 th	2	The student discusses how to 'stimulate students motivation	How to stimulate students' motivation	Diction	Participatio Reports -n
20 th	2	Explains educational models based on based -motivation educational models	Educational models based on motivation	Diction	the duty
^s 21 ^t	Exam				
22	2	The student knows how to think It is the characteristics of thinking Shows strategies for learning thinking	Thinking/characteristics of thinking/functions Thinking/learning thinking strategies	lecture	Modified lecture
23	2	The student explains the feedback	Feedback/ Its characteristics	Diction	Share
24 th	2	The student explains theories of feedback behavioral attitude,) (social learning	Classification of feedback/theories explaining it (behavioral tendency, social learning	Presentation and interrogation	Share
^t 25 ^h	2	The student recognizes the most important features Measurement and evaluation in the educational process	Measurement and evaluation in the educational process	Diction	the duty
26 th	Exam				
^t 27 ^h	2	Enumerates the types of calendar and explains its functions	Types of calendar and its functions	Presentation and lecture method	-Reports Assignment
28 th	2	Mentions evaluation tools and methods	Evaluation tools and methods/questions	Presentation and lecture method	Reports
29 th	2		review	Interrogation	Reports
30	Exam				
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Educational Psychology		

Main references (sources)	- الفلّلي، هناء حسين (2012) علم النفس التربوي، دار كنوز المعرفة للنشر والتوزيع، عمان.
Recommended books and references (scientific journals, reports...)	- الزغول، عماد عبدالرحيم (2012) مبادئ علم النفس التربوي، دار الكتاب الجامعي، العين. - الموسوي، عباس نوح (2015) علم النفس التربوي مفاهيم ومبادئ، دار الرضوان للنشر والتوزيع، عمان.
Electronic References, Websites	

Second stage

Biostatistics

13. Course Name:	
biostatistics	
14. Course Code:	
15. Semester / Year:	
2023/2024	
16. Description Preparation Date:	
20/3/2024	
17. Available Attendance Forms:	
Physical attendance	
18. Number of Credit Hours (Total) / Number of Units (Total)	
19. Course administrator's name (mention all, if more than one name)	
Name: waleed ahmed	
Email:	
20. Course Objectives	
Course Objectives	- The course objectives for a biostatistics course may include: - Understand the fundamental principles of

	biostatistics: Students will gain a solid understanding of the basic principles and concepts of biostatistics, including probability, hypothesis testing, confidence intervals, and study design. • Apply statistical methods to analyze health-related data: Students will learn how to apply various statistical methods to analyze and interpret health-related data, such as clinical trial data, epidemiological data, and public health data. They will gain practical skills in data management, data cleaning, and data analysis using statistical software. • Interpret and communicate statistical results: Students will develop the ability to interpret statistical results accurately and effectively. They will learn how to interpret p-values, confidence intervals, and effect sizes, and communicate their findings in a clear and understandable manner to both technical and non-technical audiences. • Critically evaluate research studies: Students will learn how to critically evaluate research studies in biostatistics. They will examine the strengths and limitations of study designs, assess potential biases and confounding factors, and evaluate the validity and reliability of statistical findings.
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21. Teaching and Learning Strategies

Strategy	- Traditional lectures and discussion method. - Laboratory activities and additional exercises as assignments. - Scientific books. - Daily and monthly exams
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22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first week	2	Definition of Statistics,	Understand the concept of statistics	lecture and discussion method,	Exam-reports
2	2	Calculation of Sample size	Understand the sample	lecture and discussion method,	Exam-reports
3	2	Types of Measures and Their Formulas	Understand the measures and application	lecture and discussion method,	Exam-reports
4	2	Types of Measures and	Understand measures of dispersion	lecture and discussion method,	Exam-reports

		Their Formulas			
5	2	Grouped and Ungrouped Data	Understand what the kind of data	lecture and discussion method,	Exam-reports
6	2	Exam	CPU Scheduler, Dispatcher, and Scheduling Criteria	Lecture +LAB	Oral Exam
7	2	Probability in Statistics	Understand of probability	lecture and discussion method,	Exam-reports
8	2	Events and Sample Space	Understand of sample	lecture and discussion method,	Exam-reports
9	2	Data Correlation	Understand the data correlation	lecture and discussion method,	Exam-reports
10	2	Pearson's Correlation and Its Formula	Understand of the correlation	lecture and discussion method,	Exam-reports
11	2	Exam	System Model Deadlock Characterization and RAG	Lecture +LAB	Oral Exam
12	2	Rank Correlation and Its Calculation	Learn about rank correlation	lecture and discussion method,	Exam-reports
13	2	Spearman's Correlation and Its Formula	Understand Spearman's correlation	lecture and discussion method,	Exam-reports
14	2	Applications of Correlation in Data	Learn about contingency theory	lecture and discussion method,	Exam-reports
15	2	Uses in Data Analysis	Understand theory of correspondence	lecture and discussion method,	Exam-reports
16	2	Z-Test	Learn about z-test	lecture and discussion method,	Exam-reports
17	2			Exam-reports	Oral Exam
18	2	Memory Management	Paging and Structure of the Page Table	Lecture +LAB	Oral Exam
19	2	Life Sciences Data	Learn of sciences data	lecture and discussion method,	Exam-reports
20	2	Calculation Method	Learn of sciences data	lecture and discussion method,	Exam-reports
21	2	Calculation Method	Learn of sciences data	lecture and discussion method,	Exam-reports
22	2	Calculation Method	Understand F-test	lecture and discussion method,	Exam-reports
23	2	Data Entry Methods	Understand F-test	lecture and discussion method,	Exam-reports
24	2	Data Analysis	Understand of data analysis	lecture and discussion method,	Exam-reports
25	2	Data Division and Entry in Software	Understand of software in statistic	lecture and discussion method,	Exam-reports
26	2	Entry of Custom Codes in Software	Learn of input data	lecture and discussion method,	Exam-reports
27	2	Spss program.	Learn of input data	lecture and discussion method,	Exam-reports
28	2	R PROGRAM AND RESELT	Learn of input data	lecture and discussion method,	Exam-reports
30	exam	Exam			

11 Learning and Teaching Resources

Required textbooks (curricular books, if any)	Books: Dr.mahmud al-meshdani
Main references (sources)	Introduction in biostatistics /dr hikmit orhan

Recommended books and references (scientific journals, reports...)	INTRODUCTION TO STATISTICS MADE EASY
Electronic References, Websites	INTRODUCTION TO STATISTICS MADE EASY

HISTOLOGY

1. Course Name:					
Histology					
2. Course Code:					
122					
3. Semester / Year:					
Annual					
4. Description Preparation Date:					
2023-2024					
5. Available Attendance Forms:					
mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 h/4 U					
7. Course administrator's name (mention all, if more than one name)					
Name: Asst. Dr. Hind tahir qadir Email: hind.tahir.qadir@uodiyala.edu.iq					
8. Course Objectives					
Course Objectives		1- Recognize the types of tissues in animal 2-The most important thing that distinguishes each fabric from the other 3-Enabling students to know the functions of different tissues			
9. Teaching and Learning Strategies					
Strategy		1• Clarification of animal tissues 2-.Classifies animal tissues in terms of their structure and characteristics 3-Learn about the functions of animal tissues 4-Distinguishing between tissues functionally and structurally 5-The shape of the cells and the description of the tissue components by seeing the slides of the tissue			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Histology the tissues	Primary tissues Epithelial tissues ,Connective tissues,Muscular tissues,Nervous tissues,Muscular tissues,Nervous tissues	Presentation and lecture	Class questions
2	2	Epithelial tissues Classification of Epithelial tissues	Simple Epithelial tissues Stratified Epithelial tissues	Presentation and lecture	Class questions
3	2	Stratified Epithelial tissues	Stratified Squamous E.T Stratified cuboidal E.T Stratified Columnar E.T	Presentation and lecture	Class questions
4	2	Glandular Epithelial tissues	Endocrine glands Exocrine glands Mixed glands	Presentation and lecture	Class questions
5	2	Exam			
6	2	Connective tissues	Cells Intracellular substance Fibers	Presentation and lecture	Class questions
7	2	Classification of connective tissue	Connective tissues proper Dense connective tissue Loose connective tissue	Presentation and lecture	Class questions
8	2	Specialized connective tissue	Dense connective tissue	Presentation and lecture	Class questions
9	2	Loose connective Tissue	Mesenchymal C.T Areolar C. T Adipose C.T Mucous C.T	Presentation and lecture	Class questions
10	2	Exam			
11	2	Specialized connective tissue	Skeletal connective tissue	Presentation and lecture	Class questions
12	2	Bone Haversian system Lacunae	Cartilage Hyaline ,Elastic,White fibro	Presentation and lecture	Class questions
13	2	Muscular tissues	Skeletal muscles Smooth muscles Cardic muscle	Presentation and lecture	Class questions
14	2	Nervous tissue	Cell body Processes Axon ,dendrites	Presentation and lecture	Class questions
15	2	Exam			
16	2	Histology of Organ	Circulatory system Heart,blood capillaries	Presentation and lecture	Class questions
17	2	The Integumentary system	Thick skin	Presentation and lecture	Class questions
18	2	Skin appendages	Hair,nail,sebaceous gland Sweet glands	Presentation and lecture	Class questions
19	2	Digestive system	Oral cavity Digestive tube	Presentation and lecture	Class questions
20	2	Lips,Tongue,Taste buds,teeth,salivary gland	Esophagus,Stomach,the small intestine, Duodenum,LEum	Presentation and lecture	Class questions
21	2	Exam			
22	2	Digestive glands Pancreas,Liver,Gallbladder	The large intestinal Colon,Vermiform appendix	Presentation and lecture	Class questions
23	2	Liver	The principle of Liver function	Presentation and lecture	Class questions
24	2	Pancrease	The principle of Pancrease function	Presentation and lecture	Class questions
25	2	Respiratory system	Trachea, Secondary bronchi ,bronchioles,Alveolar ,Alveolar sac	Presentation and lecture	Class questions
26	2	Exam			
27	2	The student enumerates the endocrine glands	Endocrine glands	Presentation and lecture	Class questions
28	2	The student enumerates the endocrine glands Urinary system	Endocrine glands Kidney The Ureter Urethra Urinary bladder	Presentation and lecture	Class questions
29	2	The student learns about the mechanism of action of the spleen, its types and the	The tonsils and their importance to humans	Presentation and lecture	Class questions

		Tonsils ,their types and location			
30	2	Exam			
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports tc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)			1-Histology (first part) / University of Baghdad / 2000 2-Histology (Part Two) / University of Baghdad / 2000 Ministry of Higher Education and Scientific Research - University of Baghdad 3 -Principles of Practical Histology / University of Baghdad / 1984		
Recommended books and references (scientific journals, reports...)			Basic histology .atlas and text..junqueira...2003 using an atlas of histology		
Electronic References, Websites					

Plant Taxonomy

1. Course Name	
Plant Taxonomy	
2. Course Code	
p22	
3. Semester / Year	
Year	
4. Description Preparation Date	
2023-2024	
5. Available Attendance Forms	
Mandatory Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
N.of Credit Hours Total =60 Hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Prof . Nisreen Sabbar Hashim Email:bioh.nesreen.hashim@uodiyala.edu.iq Name:Assistant prof.Aseel Kazem hadi	
8. Course Objectives	
Course Objectives	-Enabling the Student to learn about the history of plant Taxonomy. -Identify the Principles used in plant classification. -Enabling Student to know the Structural and functional characteristics of different plant parts. -Enabling Students to understand biodiversity in the plant Kingdom.

9. Teaching and Learning Strategies					
Strategy		-Lecture and interactive discussions. -Field visits to government nurseries and practical training for students in the gardens of the university complex. -Using means of illustration,such as fresh and dried plant samples ,drawing,and presentation. -Use daily,semester and final ,oral and written tests. -Holding scientific seminaris,specialized training courses, and field trips annually for second-year students to consolidate the scientific content.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The student learn about plant Taxonom	Introduction to Taxonomy and its goals	Lecture	
2	2	The student learn about the relationship of taxonomy to other sciences	The relationship of Taxonomy to other sciences	Lecture	Exam
3	2	Introucing the students to the history of taxonomy	History of Taxonomy and classification systems	Lecture and interrogation	Discussion
4	2	The students understand the basics of plant classification	Basics of plant classification,General terms.	Lecture and interrogation	Reports
5			Exam		
6	2	The student learn about the parts:roots	Vegetative plant parts,Types of roots.	Lecture and interrogation	Reports
7	2	The student learn about the parts:Stemsand buds	Stem,Types,forms, Modification,Buds	Lecture and interrogation	discussion
8	2	The student learn about Leaves,ther and accessories	Leaves,Parts, accessories, Stipules	Lecture and interrogation	Exam
9	2	The student learn about the form of venation an the arrangement of leaf on stem	Venation,Phyllotaxy	Lecture and interrogation	discussion
10			Exam		
11	2	The student learn about the blade of leaf and leafs margin	Shapes of leaf blade and its Margin	Presentation and interrogation	discussion
12	2	The student learn about the forms of base and apex of the leaf.	Shapes of leaf Base and Apex.	Presentation and interrogation	discussion
13	2	The student learn about the vesture of leaf and stem and its importance	Vister,Types and its importance	Lecture and interrogation	discussion
14	2	Students learn about the basic parts of flower	The Flower,its basic parts,the arrangement of its leaves	Lecture and discussion	Discussion and Exam
15	2	The student distinguishes the types of floral symmetry and bracts	Floral Symmetry, Bracts,Types	Lecture and interrogation	Exam
16			Exam		
17	2	The students learn about the Calyx and this importance	Calyx,Modification, Types,importance	Lecture	Reports
18	2	The students learn about the C Corolla and this importance	Corolla,Types, accessories,Importance	Lecture	Reports
19	2	The students learn about Androecium	Androecium, Components	Lecture and interrogation	Exam
20	2	The students learn about Gynoecium and location of the ovary among the floral parts	Gynoecium,Components	Lecture and interrogation	Exam
21			Exam		
22	2	The students learn about the types of stamen unions	Staminoied,Types ,Heterostaminoied	Presentation	discussion
23	2	The students learn about the types of flower inflorescences	Flower Inflorescences, Types	Lecture and interrogation	Exam
24	2	The students recognizes and distinguishes types of fruits	Fruits,Types	Presentation and Lecture	Reports
25	2	The student distinguishes the types of Placentation	Placentation,Types	Presentation and Lecture	Exam
26			Exam		
27	2	The students learn about the parts of seed and their shapes	Seeds,Types	Presentation and Lecture	Reports
28	2	The students recognizes the symbols of floral equation	Floral equation	Presentation and interrogation	Exam
29	2	The students learn about the distinctive characteristics of some monocot	The distinctive characteristics of some	Lecture and interrogation	Reports

		dicotyledon families	Monocot and Dicotyledons families.		
30			Exam		
11. Course Evaluation					
-Daily,semester and final written tests. - Oral exams. -Reports and interactive activities.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Classification of seed plants(2000),Youssef Mansour AL-Kateb		
Main references (sources)			-Plant Taxonomy(1987),Ali Hussein AL-Moussawi. - Iraqi National Herbarium.		
Recommended books and references (scientific journals, reports...)			Iraqi Flora,books theses,dissertation,and scientific journal specialized in the field of plant classification.		
Electronic References, Websites			- https://www.powo.science.kew.org . - http://www.tropicos.org/Home.aspx .		

third stage

Course Description Form

1. Course Name: Algae and archaea
2. Course Code: L 33
3. Semester / Year:2022-2024
4. Description Preparation Date:2023-2024
5. Available Attendance Forms: DIALY ATTENDACE
6. Number of Credit Hours (Total) / Number of Units (Total)2h+2h/weekly/6 units
7. Course administrator's name (mention all, if more than one name)
Name: lecturer Zeina Gany Fadeel Email: zena.ghani@uodiyala.edu.iq

8. Course Objectives					
Course Objectives		_ Identify Algae and archaea and study them in detail _ Study the life manifestations of each algae in terms of form, life cycle, diagnosis .			
9. Teaching and Learning Strategies					
Strategy		Preparing scientifically qualified cadres capable of performing their job duties in the process of development and construction by working in many areas of the state's sectors and its public and private institutions, notably: the laboratories, the Ministry of Agriculture, Irrigation, Education, Quality Control, and others.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Definition of algae science	Introduction to algae science and the foundations of classification	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
2	2	Definition of blue-green algae	blue-green algae	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
3		Definition green algae	green algae	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
4	2	Definition Charophyceae	Charophyceae	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
5	2			Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google Classroom written exams
6	the exam				
7	2	Definition Euglenophyta	Euglenophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
8	2	Definition Chrysophyta(Golden algae)	Chrysophyta(Golden algae)	Whiteboard T. v. screen and google	Quiz. Oral question Exam at google

				classroom	classroom written exams
9	2	Definition Chrysophyceae	Chrysophyceae	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
10	2	Definition Cryptophyta	Cryptophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
11	2	Definition Pyrrophyta	Pyrrophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
12	the exam				
13	2	Definition Phaeophyta	Phaeophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
14	2	Definition Rhodophyta	Rhodophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
15	2	Definition Archegoniates	Archegoniates	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
16	2	Definition Bryophyta	Bryophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
17		Definition Pteridophyta	Pteridophyta	Whiteboard T. v. screen and google classroom	Quiz. Oral questionExam at google classroom written exams
18	the exam				
11. Course Evaluation					

Using modern sources
Using modern teaching methods
Use relevant links and websites

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Algae and archaea, 2002/ Hussein Ali Al-Saadi and Nidal Idris Salman. Archicons. 2006/ Hussein Ali Al-Saadi and Nidal Idris Salman
The references books and resources	Theses and scientific journals
The references sources	purewebsite@uodiyala.edu.iq https://library.uodiyala.edu.iq/

Scientific research method

13. Course Name: Scientific research method

14. Course Code: 214 CSRM

15. Semester / Year:2022-2024

16. Description Preparation Date:2023-2024

17. Available Attendance Forms: DIALY ATTENDACE

18. Number of Credit Hours (Total) / Number of Units (Total)2h+weekly

19. Course administrator's name (mention all, if more than one name)

Name: Assistant Prof Dr Fatin Ali Al-Chalabi
Email: fatin.alghalabi@uodiyala.edu.iq

20. Course Objectives

Course Objectives

Highlighting the scientific principles and rules that must be followed by life sciences students at the initial university stage for the purpose of arriving at proper planning for integrated scientific research and publishing it in journals.

21. Teaching and Learning Strategies

Strategy

The student can rely on himself in research, preparing reports, and writing scientific research

		Identify the most important issues that the researcher faces in writing research			
22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge	Defines the concept of scientific research methodology	giving a lecture T. v. screen	Quiz. Oral question
2	2	knowledge	Determines the objectives of the scientific research method	giving a lecture T. v. screen	Quiz. Oral question
3	2	knowledge	Compares science and knowledge	giving a lecture T. v. screen	Quiz. Prepare a report
4	2	knowledge	Explains the relationship of research methodology to science and explains the importance of publishing in journals	giving a lecture T. v. screen	Quiz. Prepare a report
5	2		exams		
6	2	knowledge	Shows the importance of pure and applied scientific research Enumerates the types of scientific production	giving a lecture T. v. screen	Quiz. Prepare a report
7	2	knowledge	Enumerates the types of scientific research	giving a lecture T. v. screen	Quiz. Prepare a report
8	2	knowledge	The student identifies the elements of writing scientific research	giving a lecture T. v. screen	Quiz. Oral question
9	2	knowledge	Learn about scientific research methods and tools	T. v. screen	Oral question
10	2		exam		
11	2	knowledge	Explains the descriptive approach He enumerates his tools	giving a lecture T. v. screen	Oral question
12	2	knowledge	Compares the theoretical approach and the statistical approach	Whiteboard T. v. screen	Share

13	2	knowledge	Enumerates the main requirements for carrying out research	giving a lecture	Quiz. Oral question
14	2	knowledge	Points out errors in scientific experiments Enumerate the types of errors	giving a lecture T. v. screen	Quiz. Oral question
15	2	knowledge	Learn how to write sources of information	giving a lecture T. v. screen	Quiz. Oral question
16	2		Exam		
17	2		Learn how to write sources of information	giving a lecture T. v. screen	Quiz. Oral question
18	2	knowledge	Recording the elements of scientific research	giving a lecture T. v. screen	Quiz. Oral question
19	2		The student lists the main paragraphs of the research	giving a lecture T. v. screen	Quiz. Oral question
20	2		Learn how to write an introduction and how to cite references	giving a lecture T. v. screen	Quiz. Oral question
21	2		Exam		
22	2		Explains the importance of writing down materials, work methods, and types of samples	giving a lecture T. v. screen	Quiz. Oral question
23	2	knowledge	The student presents the discussion and conclusion	giving a lecture T. v. screen	Quiz. Oral question
24	2	knowledge	Learns about preparing a list of references and methods for writing them down, written and translated books, research, and reports	giving a lecture T. v. screen	Quiz. Oral question
25	2	knowledge	Explains the importance of writing source systems	giving a lecture T. v. screen	Quiz. Oral question
26			Exam		

27	2	knowledge	Interprets the illustrations	giving a lecture T. v. screen	Quiz. Oral question
28	2	knowledge	Explains column shapes, histograms, and other shapes	giving a lecture T. v. screen	Quiz. Oral question
29	2	knowledge	Explains the importance of photographs and their characteristics	giving a lecture T. v. screen	Quiz. Oral question
30	2	knowledge	It shows the importance of the final conclusion of the research	giving a lecture T. v. screen	Quiz. Oral question

23. Course Evaluation

Using modern sources
Using modern teaching methods
Use relevant links and websites

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Scientific research methodology A study in sci methods with an emphasis on the experimental method Doctor: Muthanna Abdel Razzaq Al Omar
Recommended books and references (scientific journals, reports...)	Website of Iraqi scientific academic journals https://www.iasj.net
Electronic References, Websites	Website of the College of Education for Pure Sciences https://puresci.uodiyala.edu.iq/

Course Description Form

25. Course Name:Genetics
26. Course Code: G33
27. Semester / Year: annual
28. Description Preparation Date:2023-2024
29. Available Attendance Forms: mandatory
30. Number of Credit Hours (Total) / Number of Units (Total) 60 hours
31. Course administrator's name (mention all, if more than one name)
Name: Assist. Profe. Dr. Ibtisam Badday Hassan Email: ibtisam.badai@uodiyala.edu.iq

32. Course Objectives					
Course Objectives			• Determines the relationship between genetics and other sciences.... • ..explaining the stages of development in genetics... • ..Learn about the process of cloning genetic material...		
33. Teaching and Learning Strategies					
Strategy		Strategies used by a faculty member to develop student teaching and learning which are plans that are followed to reach learning goals. That is, it describes curricular and extracurricular activities to achieve the learning outcomes of the programme.			
34. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Define of genetics. Mendelian inheritance explains Mendel's first law and the types of dominance	Mendelian inheritance: Mendel's law and backcross and test cross	Presentation and lecture method	Immediate exam

second	2	The law of free distribution explains Mendelian inheritance Mendel's second law and deviations from and deviations from Mendelian inheritance	The law of free distribution explains Mendel's second law, some multiplications, and also the Punnett square	declamation	Exam-Report
Third	2	Compares complete and incomplete dominance, accompaniment and supremacy	Compares complete and incomplete dominance, accompaniment and supremacy	declamation	Report
Fourth	2	The student explains the mechanism of genetic interaction	<i>The student make special crossing Interfering with gene expression and deviation from Mendel</i>	Presentation and lecture method	Immediate exam
fifth	Exam				
sixth	2	The student lists the multiple alleles	Examples of multiple alleles	declamation	Contribute and report
Seventh	2	The importance of genetics and gender	genetics and gender	declamation	Contribute and report
Eighth	2	The student compares sex-linked, sex-influenced, and sex-determined inheritance	Sex-linked, sex-influenced and sex-determined inheritance	Presentation and lecture method	Immediate exam
Ninth	2	The student distinguishes gene expression and Permeability	gene expression and Permeability	Presentation and Questioning	Discussion and lecture
tenth	Exam				
eleventh	2	Explains genetic linkage and its types	Genetic correlation and its types	declamation	Presentation
twelveth	2	The student shows the crossing and genetic maps	Crossing over and genetic mapping	declamation	the exam

Thirteen	2	Recognizes sex chromosomes and determines sex in other organisms	Sex chromosomes determine sex in other organisms	declamation	Presentation
fourteen	2	Explains quantitative genetics and shows the importance of genes	Quantitative genetics, the importance of multiple genes, genetic equivalents, twins	Presentation and lecture method	Immediate exam
fifteen	2	Explains the ways in which genetic structures appear in bacteria	Ways genetic structures appear in bacteria	Presentation and lecture method	Immediate exam
sixteen	Exam				
seventeenth		Compares chromosomal mutations and chromosomal abnormalities	Chromosomal mutations and chromosomal abnormalities in humans	declamation	Presentation
eighteenth		Explains cytoplasmic inheritance (maternal)	Cytoplasmic genetics	declamation	Presentation
nineteenth		The student explains the effect of the mother and explains the wrapping of the shell in the conch of Minya	The maternal effect explains the wrapping of the shell in the conch of Menia and Capa Paramecium	declamation	Contribute and report
twenty		Known mutations in mitochondrial DNA	Mutations in mitochondrial DNA in humans and some diseases	Presentation and lecture method	Immediate exam
twenty one	Exam				
Twenty two		Identify the structure and analysis of genetic material under the division	Synthesis and analysis of genetic material, DNA, and experiments to prove that DNA is the genetic material and that RNA is the genetic material in some filters.	lecture method	Contribute
Twenty three	2	Explains DNA replication.	DNA replication: Proof of	declamation	Presentation

		Explains the role of enzymes in replication	replication is done in a semi-conservative manner and replication enzymes. The role of RNA in replication.		
Twenty four	2	Explains and shows how RNA is replicated	RNA cloning, cutting and modification operations, in three types	Interrogative diction	Discussion and lecture
Twenty five	2	Learn about translation, protein synthesis, and determining the genetic code	Translation and protein synthesis, the genetic code and its characteristics, and the factors that help in building the peptide chain	Presentation and lecture method	Immediate exam
Twenty six	Exam				
Twenty seven	2	Identify genetics and explain its causes	Epigenetics and some associated diseases	Presentation and lecture method	Immediate exam
Twenty eight	2	Explains programmed cell death	Epigenetics, programmed cell death	Presentation and lecture method	Immediate exam
Twenty nine	2	Knows population genetics, explains Hardy-Weinberg's law	Population genetics, genetic reservoirs, Hardy-Weinberg law	declamation	report
Thirty	2	Learn about chromosomal changes and their relationship to the emergence of species, doubling of the chromosome number, and evolution	Genetics and evolution	Presentation and lecture method	Immediate exam

35. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Teaching methods
2. Course Code:
3. Semester / Year:
annual
4. Description Preparation Date:
2023-2024
5. Available Attendance Forms:
Is mandatory
6. Number of Credit Hours (Total) / Number of Units (Total)

60					
7. Course administrator's name (mention all, if more than one name)					
Name: Hadeel Sajid Ibrahim Email: hadeel.sajid78@gmail.com					
8. Course Objectives					
Objectives of the study subject			• Providing students with knowledge of teaching methods • Mastering the teaching skills and strategies involved. • Identifying the message of the Muslim teacher in society		
9. Teaching and Learning Strategies					
Strategy		discussion			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Get to know the concept	Science		
2	2	Learn about the concept of the nature of science	Nature of science		
3	2	Learn about the concept of goals	Objectives		
4	2	Learn about the concept of goals	Educational		

5	2	To learn about the concept of educational objectives and their divisions	the public		
6	2	Learn about the concept of general purposes	Private		
7	2	Learn about the concept of special purposes	Behavioral		
8	2	Identify the concept of behavioral objectives	Behavioral		
9		Exam			
10	2	Learn about the concept of curriculum	Curriculum		
11	2	Learn about the concept of the old curriculum	the old		
12	2	Learn about the concept of the modern curriculum	the talk		
13	2	Learn about the concept of organizations	Curriculum organizations		
14	2	Identify the concept of pros and cons of the	Disadvantages and advantages of the		

		curriculum	curriculum		
Exam					
15	2	Learn about the concept of modern teaching methods	Old teaching methods	Lecture and discussion	Oral questions
16	2	Identify the concept of the lecture	lecture		
17	2	Learn about the concept of discussion	Discussion		
18	2	Learn about the concept of problem solving	Problem Solving		
Exam					
19	2	Learn about this concept	Modern teaching methods	Lecture and discussion	Oral questions
20	2	Learn about the concept of the circular house	The round house		
21	2	Learn about the concept of the six hats	The six hats		
22	2	Learn about the concept of a hot seat	Hot chair		
23	2	Learn about the concept of information gap	Information gap		

		strategy			
11. Course Evaluation					
The student exam is out of 30, with 15 marks allocated for student observation and 10 marks for the plan notebook, with 5 marks given for attendance.					
12. Learning and Teaching Resources					
Introduction to general teaching methods					

Mycology

1. Course Name:
Mycology
2. Course Code:
F33

3. Semester / Year:	
annual	
4. Description Preparation Date:	
2023–2024	
5. Available Attendance Forms:	
mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 h/4 U	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Prof. Dr. Rabab Majeed Abed Email: rabab.majeed81@gmail.com	
8. Course Objectives	
Course Objectives	• Knowing the environmental, economic and health importance of fungi • The student should be able to understand and classify fungi and distinguish between them • Study the life cycles of fungi
9. Teaching and Learning Strategies	
Strategy	• Conduct a set of daily and monthly tests to evaluate the student's understanding • Asking students to make reports on the study material

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	knows mycology, Explains the importance of fungi. Understands the relationship of fungi to other organisms	Introduction to mycology	Presentation and lecture	Class questions
2	2	Learn about the phenotypic structure of fungi, the components of the cell wall, and the types of flagella	Morphological and microscopic structure of fungi	Presentation and lecture	Class questions
3	2	Learn about the forms of reproduction in fungi and methods of nutrition	Reproduction and nutrition of fungi	Presentation and lecture	Class questions
4	2	The student understands the importance of classification and enumerates the taxonomic ranks and the principles used in classifying fungi	Classification of fungi	Presentation and lecture	Class questions
5	2	Exam			
6	2	Understands myxomycota fungi, recognizes their characteristics and importance, and is able to identify their classification	myxomycota	Presentation and lecture	Class questions
7	2	Students learn about the stramenopila, its most important phylum, the oomycetes, and its general characteristics, the Stramenopila kingdom.	the Stramenopila kingdom. Phylum Oomycota	Presentation and lecture	Class questions
8	2	The most important features of the orders of the phylum	Order Ligndales order Saprologignales	Presentation and lecture	Class questions

		Ovomycetes			
9	2	The most important features of the order Peronosporales and the order Pythiales	Order peronosporales Order Pythiales	Presentation and lecture	Class questions
10	2	Exam			
11	2	Identify the most important characteristics of the Eumycota phylum	Eumycota	Presentation and lecture	Class questions
12	2	The most important features of the phylum Eumycota Fungi	Blastochydomycota Neocallomistgomycota	Presentation and lecture	Class questions
13	2	The most important features of the Chytridiomycota phylum	Chytridiomycota	Presentation and lecture	Class questions
14	2	The most important features of zygomycota fungi and their most important fungi	Zygomycota	Presentation and lecture	Class questions
15	2	Exam			
16	2	The student learns about the most important features of mycorrhizal fungi, their most important types, and methods of classification	Glomeromycota	Presentation and lecture	Class questions
17	2	The most important features of Ascomycota fung	Introduction in Ascomycota	Presentation and lecture	Class questions
18	2	The most important features under the phylum Taphrinomycotina	Taphrinomycotina	Presentation and lecture	Class questions
19	2	The most important features of Saccharomycotina	Saccharomycotina	Presentation and lecture	Class questions
20	2	The most important features and classes of Pezizomycotina	Pezizomycotina	Presentation and lecture	Class questions
21	2	Exam			

22	2	The most important features of the Discomycetes class	Class Leotiomyces Class Discomycetes Describe Leotiomyces	Presentation and lecture	Class questions
23	2	The most important features of the Sordariomycetes class Description of Loculoascomycetes Pezizomycetes	class Sordariomycetes class Description of Loculoascomycetes Describe Pezizomycetes	Presentation and lecture	Class questions
24	2	The most important features of basidiomycetes	Basidiomycota	Presentation and lecture	Class questions
25	2	Known of Puccinomycotina	Puccinomycotina	Presentation and lecture	Class questions
26	2	Exam			
27	2	Distinguishes between Ustilagomycotina and Agaricomycotina	Ustilagomycotina And Agaricomycotina	Presentation and lecture	Class questions
28	2	Imperfect fungi	Imperfect fungi	Presentation and lecture	Class questions
29	2	Medicinal fungi	Medicinal fungi	Presentation and lecture	Class questions
30	2	Exam			
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ... etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Fungi (2000) by Ibrahim Aziz Khaled Al-Suhaili		
Main references (sources)			Classification and division of fungi (2012). Fayyad Muhammad Sharif, Iraq Fungal Plant Diseases (2012). Fayyad Muhammad Sharif, Iraq		
Recommended books and references (scientific journals, reports...)			websites		
Electronic References, Websites					

Fourth stage

immunity

13. Course Name: immunity
14. Course Code: I44
15. Semester / Year: annual
16. Description Preparation Date: 2023/2024
17. Available Attendance Forms: mandatory
18. Number of Credit Hours (Total) / Number of Units (Total) 60 hours
19. Course administrator's name (mention all, if more than one name)
Name: Assist. Profe. Dr. MAHA FALIH NAZZAL Email: maha.falih@uodiyala.edu.iq
20. Course Objectives

Course Objectives	• Determines the relationship between immunology and other sciences.... • ..explaining the parts of immunity • ..Learn about inflammation and phagocytosis
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21. Teaching and Learning Strategies

Strategy	Strategies used by a faculty member to develop student teaching and learning which are plans that are followed to reach learning goals. That is, it describes curricular and extracurricular activities to achieve the learning outcomes of programme.
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22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	1	Introduction to immunity	Introduction to immunity	Presentation and lecture method	Immediate exam
second	1	Cellular component of immune system)immune cells	Cellular component of immune system)immune cells	declamation	Exam-Report
Third	1	Cellular component of	Cellular component of	declamation	Report

		immune system)immune cells(	immune system)immune cells(		
Fourth	1	Antigens and immunogenes	Antigens and immunogenes	Presentation and lecture method	Immediate exam
fifth	Exam				
sixth	1	immunoglobulins	immunoglobulins	declamation	Contribute and report
Seventh	1	barriers Innate	barriers Innate	declamation	Contribute and report
Eighth	1	Complement system	Complement system	Presentation and lecture method	Immediate exam
Ninth	1	Cytokines	Cytokines	Presentation and Questioning	Discussion and lecture
tenth	Exam				
eleventh	1	Phagocytosis	Phagocytosis	declamati on	Presentation
twelveth	1	Inflammation	Inflammation	declamation	the exam
Thirteen	1	Major histocompatibility complex(MHC	Major histocompatibility complex(MHC	declamati on	Presentation
fourteen	1	Types of immune response (primary and secondary	Types of immune response (primary and secondary	Presentation and lecture method	Immediate exam
fifteen	1	Humoral and cell - mediated immunity	Humoral and cell - mediated immunity	Presentation and lecture method	Immediate exam
sixth	1	Immunological tolerance	Immunological tolerance	declamation	Presentation
seventh	1	Auto immune diseases}	Auto immune diseases	declamation	Presentation

23. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc	
24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	cellular and molecular immunology, 7th edition 2011 2-.-immunology, 8th edition, 2013
Main references (sources)	cellular and molecular immunology, 7th edition 2011 2-.-immunology, 8th edition, 2013
Recommended books and references (scientific journals, reports...)	Theses and dissertations and partical magazine
Electronic References, Websites	https://2u.pw/1IM15 https://2u.pw/H9yxT https://2u.pw/SeIdE https://2u.pw/CMX4Y https://2u.pw/Yg4t5 https://2u.pw/WD9eM

Course Description Form

25. Course Name: Animal physiology	
26. Course Code: A44	
27. Semester / Year: the year Fourth (stage Fourth)	
28. Description Preparation Date:2023-2024	
29. Available Attendance Forms: My attendance is mandatory	
30. Number of Credit Hours (Total) / Number of Units (Total): 60 hours/6 units	
31. Course administrator's name (mention all, if more than one name)	
Name: Ass.prof. Dr.Luay Qasim Abdulhameed Email: loai.qassim@uodiyala.edu.iq	
32. Course Objectives	
Course Objectives - Providing students with basic information about the principles of animal physiology and enabling them to employ that information in the educational process. 1- the definition with physiology and its principles. 2- Identify on physiology metabolism And the organs. 3- Enable Students from to understand And jobs Chemical For components cell. 4- Enable Students from to understand Jobs Vitality for Devices Vitality a device Rotation for example,	• • •
33. Teaching and Learning Strategies	
Strategy	- Strategy Learning until Mastery. - road Solution the problems. - road Inductive.
34. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	2	Known Physiology and its general principles, experimental methods, general principles, metabolism, and internal coordination	the introduction:Physiology and its general principles, experimental methods, general principles, metabolism, and internal coordination	show style and the lecture	Discussion
the second	2	Explains the physiology of the nervous system, explains the work and methods of recording electrical activity	Physiology of the nervous system: nerve cell - susceptibility to irritation, experimental characteristics of the plant, electrical activity - methods of recording electrical activity	Diction a screen an offer	Exam daily
the third	2	ExplainsThe relationship between the permeability of ions and the action potential	The relationship between the permeability of ions and the action potential, the properties of living nerves and receptors - shoot transmission, the precise structure of synapses	Diction a screen an offer	a report

the fourth	2	Explains mechanism a jobReceptionChemistry, reflexes, and the autonomic nervous system	Neurotransmitters - the chemical reception mechanism, reflexes, and the autonomic nervous system	road the offer and the lecture	Exam daily
Fifth	2	Exam	Exam	Exam	Exam
VI	2	Among the most importantTypes of muscles Shows the precise structures of muscle cells	Physiology of the muscular system and types of muscles - the precise structures of muscle cells and the chemical properties of the muscle	Diction a screen an offer	Share
Seventh	2	ExplainsThread-slip theory Compare a stimulus and a response	The theory of filamentous sliding - the excitatory- contractive coupling and energy sources in the muscle - the relationship between stimulus, response and heat production in the muscle - oxygen deficit - fatigue	Diction a screen an offer	Discussion - Report
VIII	2	He explainsThe anatomy of the circulatory system and the heart in vertebrates	Physiology of the circulatory system and heart in vertebrates - pacemaker - accidents, electricity in the heart and transmission of irritation waves, blood pressure - factors affecting blood pressure	Presentation and lecture method a screen an offer	Exam daily
Ninth	2	ComparesBlood groups Working mechanismRh	Nervous control, blood groups, RPS factor, lymphatic system, lymph nodes, and lymph node functions.	Presentation and interrogation	Discussion
The tenth	2	Exam	Exam	Exam	Exam
atheistic ten	2	Explains the physiology of the respiratory system, explains breathing Explains the mechanism of action of respiratory chemistry Explains the methods of transporting gases	The physiology of the respiratory system, breathing - the chemistry of breathing - the transport of gases and their laws and the transport of oxygen - the states of the presence of carbon dioxide - the exchange of gases and cellular respiration	Diction a screen an offer	Share
the second ten	2	The student explains the mechanism of neural control over respiratory movements	Neural control of respiratory movements - chemical regulation and additional neural reflexes that control breathing	Diction a screen an offer	Exam daily
the third ten	2	Explains the physiology of the digestive system Enumerate the accessory glands Explains the process of digestion in the stomach	Physiology of the digestive system - accessory glands and digestion in the stomach - secretion of hydrochloric acid and digestive enzymes in the stomach	Diction a screen an offer	Discussion
the fourth ten	2	Show More important Digestive enzymes in the stomach	Digestive enzymes in the stomach - controlling the work of the stomach and intestinal digestion - the pancreas and its secretions - bile, absorption and excretion	road the offer And the lecture	Share
Fifth ten	2	Explains the mechanism of temperature regulation in animals	The physiological effect of heat, energy metabolism, and temperature regulation in animals - temperature regulation center in animals - thermoregulation center - hormonal control	road the offer And the lecture	Discussion
sixteen	2	Exam	Exam	Exam	Exam
seventeenth	2	Shows the importanceMethods of measuring factors affecting metabolic rate	Disorders of thermoregulation and energy metabolism - methods for measuring factors affecting metabolic rate and thermal coefficient - respiratory coefficient - thermal compression and energy transfer	Diction a screen an offer	Discussion
eighteen	2	Explains the mechanism of kidney function and the balance of bodily fluids List the functions of the college	The kidney, body fluid balance, and kidney functions - regulating urine volume, regulating body fluids, and the basics of fluid balance - regulating the movement of water and ions	Diction a screen an offer	Share
Ninth ten	2				

The twentieth	2	application			
the one And the twenty	2				
the second And the twenty	2				
twenty third	2	The student compares metabolic disorders and respiratory disorders	Acid-base balance - metabolic disorders - respiratory disorders	Diction a screen an offer	Exam daily
twenty fourth	2	Explains methods for studying hormones	Endocrine glands and hormones - regulation of the formation and secretion of hormones - methods of studying hormones	Presentation and interrogation	Share
25th	2	Enumerates the chemical types of hormones and pituitary glands - explains the importance of pituitary gland hormones Learn about the thyroid glands and their hormones	Chemical types of hormones: the pituitary glands - their hormones, the thyroid glands and their hormones, the parathyroid glands - the pancreas and their hormones, and the adrenals and their hormones.	Presentation and lecture method	Discussion
twenty-sixth	2	Exam	Exam	Exam	Exam
Seventh And the twenty	2	Explains a job Sex hormones	Sex hormones and prostate glands	road the offer And the lecture	Share
VIII And the twenty	2	Explains the physiology of the female reproductive system	Physiology of the female reproductive system - puberty - the estrous cycle and types of ovulation in animals	road the offer And the lecture	Discussion
Ninth And the twenty	2	Shows the importance of the stages of the oogenesis process	The process of egg formation - the menstrual cycle and the male reproductive system - the development of sperm and the factors affecting it	Diction a screen an offer	Discussion
thirty	2	Learn about the effect of hormones on fertilization and pregnancy	Effect of hormones, fertilization and pregnancy	road the offer And the lecture	Exam daily

35. Course Evaluation

-17 marks for the first semester monthly exam +8 for the first semester practical exam.
-17 marks for the monthly exam of the second semester +8 for the practical exam of the second semester.
-50 degrees For the exam Final.

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Animal physiology (1989) Youssef Muhammad Arab.
Main references (sources)	Physiology, Professor Dr. Shteivi Saleh Abdulah , First Edition, 2012.
Recommended books and references (scientific journals, reports...)	Website of Iraqi scientific academic journals http://www.iasj.net
Electronic References, Websites	- Website - College of Education for Pure Sciences website. https://puresci.uodiyala.edu.iq/ - The website of the Central Library – University of Diyala. https://uodiyala.edu.iq/

Course Description Form

37. Course Name: PARASITOLOGY					
38. Course Code: 44R					
39. Semester / Year:2022-2024					
40. Description Preparation Date:2023-2024					
41. Available Attendance Forms: DIALY ATTENDACE					
42. Number of Credit Hours (Total) / Number of Units (Total)2h+2h/weekly/6 units					
43. Course administrator's name (mention all, if more than one name)					
Name: Prof Dr Nagham Y Albayati Email: nagham.alfadaam@uodiyala.edu.iq					
44. Course Objectives					
Course Objectives			- Identify parasites that infect humans animals and study them in detail - Study the life manifestations of parasite in terms of form, life c pathogenesis, epidemiology, diagnosis prevention of all parasites that c diseases..... 		
45. Teaching and Learning Strategies					
Strategy		Preparing scientifically qualified cadres capable of performing their job duties in the process of development construction by working in many areas of the state's sectors and its public and private institutions, most notably Ministry of Health and public and private hospital laboratories, the Ministry of Agriculture, Irrigation, Education, Qu Control, and others.			
46. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge	Introduction ,history review.	Whiteboard	Quiz.

			Relationship among animals	T. v. screen and google classroom	Oral question Exam at google classroom written exams
2	2	knowledge	Characters of parasitism . types of parasites . types of hosts	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
3	2	knowledge	Parasitism in animal kingdom Infective stages. sources of infection	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
4	2	knowledge	holydays	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
5	2	knowledge	Entrances and exits of infection – the Protozoa phylum, its characteristics, manifestations, and types	Whiteboard T. v. screen and google	Quiz. Oral question Exam at

				classroom	google classroom written exams
6	2	knowledge	Entamoeba histolytica , E coli. Endolemax nana Dientamoeba fragilis free amoeba	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
7	2	knowledge	Class: flagellate Giardia . Chilomastix Trichomonas tenax . T. hominis. T vaginalis T . fetus	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
8	2	knowledge	Exam	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
10	2	knowledge	Trypanosoma gambiense T rodhensi T cruzi	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
11	2	knowledge	Leishmania tropica L. donovani L. braziliensis	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom

					written exams
12	2	knowledge	Plasmodium its species life cycle Toxoplasma Cryptosporidium	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
13	2	knowledge	Platyhelminthes Liver fluke	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
14	2	knowledge	Intestine fluke Lung fluke blood fluke	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
15	2	knowledge	Cestodes Teania solium T. saginata Cyclophyllidea Echinococcus granulosu Dipylidium caninum	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
18	2	knowledge	Nemathelminthes Class:Aphasmodia Trichinella spiralis Trichuris trichiura	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams

19	2		Spring holiday		
20	2		Spring holiday		
21	2	knowledge	Phylum: Nemathelminthes Class : Phasmidia Ascaris lumbricoides Ancylostoma Duodenale Phasmidia Enterobius vermicularis Wuchereria	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
22	2		Application in schools		
23	2		Application in schools		
24	2		Application in schools		
25	2		Application in schools		
26	2	knowledge	Phylum :Arthropda Class:Insecta Musca domestica Stomoxys calcitrans Phlebotomus papatasi Glossina Sarcophagidae Myiasis	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
27	2	knowledge	Mosquitoes Lice Menopon gallinae Menacanthus stramineus Fleas Pulex irritans Ctenocephalides	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
28	2	knowledge	Class Arachnida Order:Acarina Ticks Mites	Whiteboard T. v. screen and google classroom	Quiz. Oral question Exam at google classroom written exams
47. Course Evaluation					

Using modern sources Using modern teaching methods Use relevant links and websites	
48. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Al-Shahas, Sakh (2008). Damascus University Shaaban, the father of the brotherly brother in the trees of the Dhafiyat tree. University of Baghdad. B Akhun, Harulj B Akhun (1980). Wajan Damham Salih and Akhkhun, Al-Sa University
Main references (sources)	Roberts, L. & Johon Jr. Jonovey (2005). Foundation of parasitology
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: Plant Physiology	
2. Course Code: P44	
3. Semester / Year: Annual	
4. Description Preparation Date: 2023-2024	
5. Available Attendance Forms: Mandatory	
6. Number of Credit Hours (Total) / Number of Units (Total) 60 hour	
7. Course administrator's name (mention all, if more than one name) Name: Nagham Saddon Ibrahim Email: basicsci1@uodiyala.edu.iq	
8. Course Objectives	
Course Objectives	• Determines the relationship between plant physiology and other sciences..... • Explains cellular systems... • Determines water relations and diffusion... • Discusses growth regulators and hormones.....

						
9. Teaching and Learning Strategies						
Strategy		1- Problem solving 2- Learning until mastery 3- Inductive method				
10. Course Structure						
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
1	2	Defines the concept of plant physiology, explains its importance and its relationship with other branches of life sciences List the colloidal solutions	The concept of plant physiology, its importance and its relationship to other branches of life sciences	show method		
2	2	Explains the importance of water and its properties	Plant water relations: energy and its types, the importance of water and its properties, and the reasons for it acquiring those properties: Diffusion, the concept, diffusion of gases and their properties, osmosis (osmosis): the concept, ideal conditions, semi-mature and perforating membranes (plant membranes)	Diction	Exam-reports	
3	2	Compares between osmosis and water potential Enumerates ways to measure types of potential	Osmotic and water potential and pressure and the relationship between them Plasma contraction (plasma, methods of measuring types of voltage)	Diction	Reports	
4	2	Shows the mechanism of water absorption Enumerates the ways of water transfer in the plant Shows the most important influencing factors	Water absorption and transmission in plants: concept, mechanisms and influencing factors	Presentation method and lecture	Surprise exam	
5	Exam					
6	2	Explains the importance of transpiration Defines the concept of stomata Explains the mechanism of opening and closing stomata Shows the factors affecting transpiration	Transpiration: the concept of stomata and their distribution The mechanism of opening and closing stomata Factors affecting transpiration	Diction	Participation – Reports	
7	2	Enumerates the methods of measuring transpiration	Methods for measuring transpiration in plant groups Methods of reducing transpiration	Diction	Participation – Reports	
8	2	Explains the mechanism of water tension and plant resistance to dry	Water tensile and dry resistance of the plant	Presentation -Lecture	Surprise exam	
9	2	Explains the absorption of potassium	Leaf anatomy: ionic absorption and especially potassium absorption	Presentation and interrogation	Discussion – Lecture	
10	Exam					
11	2	Explains the mechanism of ion absorption	Ion absorption	Diction	Participation	
12	2	The student shows the importance of mineral nutrition for plants. Show The most important methods of studying it explains the mechanism of negative absorption	Plant mineral nutrition: plant mineral components - methods of studying them - basic elements (macro, micro and beneficial nutrients) Passive absorption and its mechanisms	Diction	test	
13	2	Recognizes effective absorption	Effective absorption Concept Mechanical evidence Functions and physiological importance of basic elements	Diction	Participation	

14	2	The student is introduced to the mechanism of light synthesis (construction)	Photosynthesis Overview Pigments Absorption spectrum, action spectrum Light and visible spectrum	Presentation method and lecture	Surprise exam
15	2	Shows the importance of light reactions: shows the origin of oxygen and the evidence Electron transport explains the effect of Emberson and the photosystems and photophosphorylation compares between: C3 and C4 plants Compares between (Calvin, Wahaj Slack and CAM, photorespiration	Light reactions: oxygen origin and evidence Electron transfer Effect of Imperson and photosystems and photophosphorylation Dark reactions: C3 and C4 plants (Calvin, Hag Slack and CAM, photorespiration)	Presentation method and lecture	Surprise exam
16	Exam				
17	2	Shows factors affecting photosynthesis	Factors affecting photosynthesis	Diction	Participation
18	2	Explains the mechanism of transport with phloem	Corteal transport: an overview Advantages	Diction	Participation
19	Application				
20					
21					
22					
23	2	Explain the Krebs cycle	Respiration: diabetic fission and Krebs cycle, pathway of phosphorylated pentoses and cloxylate, respiration laboratory	Diction	Participation
24	2	Compares composition and differentiation	Plant growth and formation: the concept of growth - formation and differentiation	Presentation and interrogation	Participation
25	2	Enumerates places of growth Lists types of meristems	Places of growth and types of meristems, growth kinetics	Presentation and lecture	Surprise exam
26	Exam				
27	2	Explains the process of growth and development and defines growth regulators Defines oxins and shows methods of discovery	Growth and development. Regulators and Plant Hormones. Definitions of Oxin Discovery, distribution in the plant and transfer	Presentation - Lecture	Report-Homework
28	2	Identify gibberelins and cytokines: build methods of discovery explain the most important physiological effects	Gbeirlins and cytokines: detection and physiological effects	Presentation - Lecture	Reports
29	2	Shows the importance of abscisic acid and ethylene	Absciscic and ethylene acid	Diction	Reports
30	2	Explains the mechanism of physiological effects	Discovery and physiological effects	Presentation and lecture	Surprise exam
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc.					
The distribution is as follows: 50 points on the monthly written exam, 15 points on the daily preparation, 20 points on the daily oral exam and 15 points on the reports, knowing that the material is theoretical and practical.					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			- Plant Physiology, Deflin and Witham: Part I and Translation. Dr. Tahrir Ramadan, Dr. Fahima Abdul I Hana Fadel Khamis, Ministry of Higher Education Scientific Research, University of Baghdad, Dar Al-Hi		

	Printing, 1991. - Practical plant physiology Assoc. Hussein Ali Al-Saadi, Dr. Abdullah Hamad Al-Mou Ministry of Higher Education and Scientific Research University of Basra, 1990
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Water in the life of plants, d. Riyad Abdel Latif Al-Ministry of Higher Education. University of Mosul, 19
Electronic References, Websites	Websites, College of Education for Pure Sciences Web www.puresci.uodiyala.edu.iq Website of the Central Library of Diyala University http://www.uodiyala.edu.iq Iraqi Scientific Academic Journals Website http://www.iasj.net

Course Description Form

23. Course Name: MICROBIOLOGY	
24. Course Code: M44	
25. Semester / Year: The fourth stage	
26. Description Preparation Date: 2023-2024	
27. Available Attendance Forms: Daily attendance	
28. Number of Credit Hours (Total) / Number of Units (Total) 60h / 6 units	
29. Course administrator's name (mention all, if more than one name)	
Name: Prof Dr Saba Jasim Jawad Email: :saba.jasim@uodiyala.edu.iq	
30. Course Objectives	
Course Objectives	• • •
Providing students with basic information about the principles of microbiology and enabling them to employ that information to work in the field of teaching and the educational process.	
31. Teaching and Learning Strategies	
Strategy	Learning strategy until mastery -How to solve problems -As an inductive method

32. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Learn about microbiology Scientists count	Learn about microorganism and a brief history	Lecture method Display Screen	Discussion
2	2	Explains theories of emergence of microbiology	Theories emergence microbiology	Diction Display Screen	Daily exam
3	2	Explains the spread of microorganisms	the spread of microorganisms	Diction Display Screen	a report
4	2	Classify the foundations of bacteria Exam	Classify of bacteria and foundations of bacteria	Lecture method Display Screen	Discussion
5	2	Enumerate the types of bacteria	Characteristics of bacteria Its locations Bacteria shapes	Diction Display Screen	Share
6	2	Distinguish the anatomy of bacteria Distinguishes the bacterial wall	Bacterial anatomy bacterial wall		
7	2	Enumerate the stages of bacterial pigmentation	Staining of bacteria, spores and capsules	Diction Display Screen	Discussion a report
8	2			Lecture method Display Screen	Daily exam
9	2	Understands life cycles and stages of development Exam	Bacterial growth curves	Diction Display Screen	Discussion
10	2	Explains the physiology of microorganisms	the physiology of microorganisms	Lecture method Display Screen	Share
11	2	Explains the importance of microbial genetics	the importance of microbial genetics	Diction Display Screen	
12	2	Identify the phenotypic characteristics on bacterial culture plates	Study of phenotypic	Diction Display Screen	Daily exam

13	2	Learn about the laws controlling microorganisms	characteristics on bacterial culture plates	Lecture method Display Screen	Discussion
14	2	Exam	Control of microorganisms	Lecture method Display Screen	Share
15	2	Explains the importance of antibiotics	Antibiotics and their types	Lecture method Display Screen	Discussion
16	2	Enumerate the microorganisms in the environment	Microorganisms in environment	Lecture method Display Screen	Share
17	2	Knows viruses and their composition	Viruses-their composition	Lecture method Display Screen	Share
18	2	application			Share
19	2	application			
20	2	application			
21	2	application			
22	2	Learn about bacteria cultivation methods	Microorganism cultivation	Lecture method Display Screen	
23	2	Exam		Lecture method Display Screen	
24	2	Identify pathogenic microorganisms	pathogenic microorganisms	Lecture method Display Screen	Discussion
25	2	Staphylococci, Enterobacteriaceae	Staphylococci, Enterobacteriaceae	Lecture method Display Screen	
26	2	Exam		Lecture method Display Screen	Discussion
27	2	Shows the mechanisms			

		controlling microorganisms	pathogen	controlling microorganisms	pathogen	Lecture method Display Screen	
26	2	Explains microorganisms in water		microorganisms in water			Daily exam
27	2	Shows microorganisms in food		microorganisms in foods			
28	2						Discussion
29	2						Discussion
30	2						Discussion

33. Course Evaluation

17 marks for the monthly exam of the first semester + 8 marks for the daily exam of the first semester
-17 marks for the monthly exam for the second semester + 8 marks for today's exam for the second semester
- 50 marks for the final exam

34. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Microbiology, Hamid Majeed Al-Zaidi, 2000, Ministry of Higher Education and Research: University of Baghdad
Main references (sources)	Riedel, S.; Morse, S. M.; Mietzner, T. and Miller, S. (2019). Jawetz, Melnick and Adelberg. Medical Microbiology. 28 th ed. New York: MC Graw Hill education
Recommended books and references (scientific journals, reports...)	raqi academic journals website http://www.iasj.net
Electronic References, Websites	Website of the College of Education for Pure Sciences www.puresci.uodiyala.edu.iq The website of the Central Library, University of Diyala http://www.uodiyala.edu.iq

Course Description Form

1. Course Name:
View and apply
2. Course Code:

3. Semester / Year:					
Annual					
4. Description Preparation Date:					
2023-2024					
5. Available Attendance Forms:					
Is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60					
7. Course administrator's name (mention all, if more than one name)					
Name: Hadeel Sajid Ibrahim Email: hadeel.sajid78@gmail.com					
8. Course Objectives					
Objectives of the study subject				• Providing students with knowledge of teaching methods • Mastering the teaching skills and strategies involved. • Identifying the message of the Muslim teacher in society	
9. Teaching and Learning Strategies					
Strategy		discussion			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Practical education and its importance			Oral exams
2	2	Meaning of viewing			
3	2	Teacher qualities			
4	2	Foundations of teaching			
5	2	Class management			
6	2	Classroom management			
7	2	time management			
8	2	Class climate			
9		Exam			
10	2	Reinforcement			
11	2	Feedback			
12	2	Teaching aids			
13	2	Learning motivation			
14	2	Learning motivation			
Exam					
15	2	Microteaching		Lecture and discussion	Oral questions
16	2	Microteaching			
17	2	study plan			
18	2	study plan			
Exam					
19	2	Create a mini lesson for each student		Lecture and discussion	Oral questions
20	2	Create a mini lesson for each student			
21	2	Create a mini lesson for each student			
22	2	Create a mini lesson for each student			

23	2	Create a mini lesson for each student			
11. Course Evaluation					
The student exam is out of 30, with 15 marks allocated for student observation and 10 marks for the plan notebook, with 5 marks given for attendance.					
12. Learning and Teaching Resources					
Introduction to general teaching methods					

Course Description Form

1. Course Name:					
Optional (viruses)					
Department of biology					
2. Course Code:					
Optional (viruses)					
3. Semester / Year:					
annual					
4. Description Preparation Date:					
1/9/2023					
5. Available Attendance Forms:					
weekly					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 credit hours					
7. Course administrator's name (mention all, if more than one name)					
Name: asnmaa haseeb hwaid					
Email: asmaa.haseeb@ymail.com					
8. Course Objectives					
Course Objectives			To introduce the nature of viruses, their appearance symmetry, explain the classification of the virus, replication, viral families with DNA, viral families with RNA, how the host deals with viral infections, definition of pathogenesis of viruses,		
9. Teaching and Learning Strategies					
Strategy		1- How to solve problems 2- Method of education until mastery Evaluation methods 1- Daily tests 2- Monthly tests 3- Homework			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	defining viruses,	defining viruses	lecture and discussion method,	Exam-reports
2	2	Learn about chemical structure of viruses	Chemical structure of viruses	lecture and discussion method,	Exam-reports
3	2	Identify the symmetry of viruses	Virus appearance and symmetry:	lecture and discussion method,	Exam-reports

4	2	Classification viruses	Learn about the classification of viruses	lecture and discussion method,	Exam-reports
5	2	Virus Replication	Identify virus replication	lecture and discussion method,	Exam-reports
6	2	Exam			
7	2	Identify families DNA viruses	Viral families/DNA viruses	lecture and discussion method,	Exam-reports
8	2	The first part identifies the families of RNA viruses	Viral families/RNA viruses.	lecture and discussion method,	Exam-reports
9	2	The second identifies the families of RNA viruses	Viral families/RNA viruses.	lecture and discussion method,	Exam-reports
10	2	Learn about pathogenesis viruses	Pathogenesis of viruses	lecture and discussion method,	Exam-reports
11	2	Exam			
12	2	Learn about methods for diagnosing viruses	Methods for diagnosing viruses	lecture and discussion method,	Exam-reports
13	2	recognizes dsRNA viruses	dsRNA	lecture and discussion method,	Exam-reports
14	2	recognizes +ssRNA	+ssRNA	lecture and discussion method,	Exam-reports
15	2	recognizes dsRNA	dsRNA	lecture and discussion method,	Exam-reports
16	2	recognizes -ssRNA viruses	-ssRNA	lecture and discussion method,	Exam-reports
17	2				
18					
19					
20					
21					
22	2	Recognizes reverse transcriptase viruses	Reverse transcriptase DNA viruses	lecture and discussion method,	Exam-reports
23	2	Recognize reverse transcriptase viruses	Reverse transcriptase RNA viruses	lecture and discussion method,	Exam-reports
24	2	To know what innate immunity is	Innate Immunity:	lecture and discussion method,	Exam-reports
25	2	To know what acquired immunity	Acquired immunity	lecture and discussion method,	Exam-reports
26	exam				
27	2	To identify the families of pathogenic herpesviruses	Herpes viruses and AIDS viruses	lecture and discussion method,	Exam-reports
28	2	To identify papillomaviruses family and viruses that cause respiratory diseases.	papillomaviruses viruses that cause respiratory diseases.	lecture and discussion method,	Exam-reports
29	2	To identify pathogenic viruses of the parvovirus family	Viruses of the parvovirus family and the enterovirus family.	lecture and discussion method,	Exam-reports
30	exam				
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation,					

daily oral, monthly, or written exams, reports etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Books: Human virology / A.M.D. Haider Abdel Hassan
Main references (sources)	Dimmock, Easton and Leppard 2016
Recommended books and references (scientific journals, reports...)	Virology principles and applications
Electronic References, Websites	Viralzone

Course Description Form

1. Course Name:					
Elective (Molecular Biology)					
2. Course Code:					
3. Semester / Year:					
IV					
4. Description Preparation Date:					
2024-2023					
5. Available Attendance Forms:					
My attendance is mandatory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
60 hours/4 units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Mohanad Wheeb. Mahdi					
Email: mohanad@uodiyala.edu.iq					
8. Course Objectives					
Course Objectives		- Make the student able to: identify the components of genetic material - Studies the role played by genes and diseases - Studies the surrounding factors and causes that cause diseases			
9. Teaching and Learning Strategies					
Strategy		- Learning strategy until mastery. - How to solve problems. - Inductive method.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Common in Large molecules Known molecular biology	Introduction to molecular biology	show style And the lecture	Discussion
2	2	physical and chemical Explains the of genetic material properties	Physical and chemical properties of genetic material	Diction Display Screen	Daily exam
3	2	between Explains The relationship temperature and cold to separate and	materialHybridization of genetic	Diction Display Screen	report

4	2	rearrange DNA strands of Explains the mechanism of action inside packages of nitrogenous bases the packing place	DNA packaging	Presentation and lecture method	exam Daily
5		Exam			
6	2	package nucleic measures important viruses into acid	Virus DNA packaging	Diction Display Screen	Share
7	2	1 important procedures The most Bacteria inside packing the DNA	Prokaryotic DNA packaging	Diction Display Screen	report - Discussion
8	2	The mechanism used for He explains packaging and the most important proteins involved in the packaging process	packaging Eukaryotic DNA	Presentation and lecture method Display Screen	exam Daily
9	2	the genomes of organisms Compares eukaryotic -prokaryotic -Viruses	Genome	Presentation and interrogation	Discussion
10	2	Exam			
11	2	Chromosomes are defined and classified based on chromosomes are the presence of centromeres	Chromosome	Diction Display Screen	Share
12	2	Explains the mechanism of replication and the most important procedures that accompany replication	Synthesis DNA Replication	Diction Display Screen	exam Daily
13	2	the stages of replication in Explains eukaryotic cells	cellsReplication in eukaryotic	Diction Display Screen	Discussion
14	2	It shows the most important enzymes accompanying the process and compares replication in both directions	bidirectional Unidirectional and replication	Presentation and lecture method	Share
15	2	Identify replication enzymes	Replication enzymes	Presentation and lecture method	Discussion
16	2	Exam			
17	2	of cloning in importance Explains the organisms	RNA Transcription RNA cloning	Diction Display Screen	Discussion
18	2	of cloning in Explains the mechanism coliform bacteria	In primitives RNA cloning	Diction Display Screen	Share
19	2	application			
20	2				
21	2				
22	2				
23	2	The mechanism used in constructing single tape the	mRNA Building	Diction Display Screen	exam Daily
24	2	the most important parts and Shows components of polymerase enzymes	RNA Polymerase Synthesis of in prokaryotesenzymes	Presentation and interrogation	Share
25	2	Explaining the mechanism of reproduction in eukaryotes	RNA replication in eukaryotes	Presentation and lecture method	Discussion
26	2	Exam			
27	2	Recognizes the different enzymes of types	Polymerase enzymes in eukaryotes	Presentation and lecture method	Share
28	2	RNA enzymes Compare	RNAs Different types of	Presentation and lecture method	Discussion
29	2	Explains the importance of translation in organisms and how proteins are produced	Translation	Diction Display Screen	Discussion
30	2	the components of the Recognizes DNA and the components of carrier its codes and anticodes	TRNA synthesis	Presentation and lecture method	exam Daily

11. Course Evaluation

-25 marks for the monthly exam, first semester
-25 marks for the monthly exam, second semester
- 50 marks for the final exam.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Molecular Biology , Abbas Abdullah Al-Janabi, Ministry of Hi Education and Scientific Research, Technological University, 20
Main references (sources)	Principles of Molecular Genetics , Mohammed Baqir, Hammoud Al-Saadi, Haider Kamel Zidan, Ministry of Hi Education and Scientific Research, University of Babylon, 2013
Recommended books and references (scientific journals, reports...)	Website of Iraqi scientific academic journals http://www.iasj.net
Electronic References, Websites	website of the Central Library - University of Diyala. https://uodiyala.edu.iq

