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

2024−2025

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.

Academic Program Description Form

University Name: …**Mosul**……

Faculty/Institute: ..**College of Education for Pure Sciences**……

Scientific Department: .. **Biology**…**Department**……

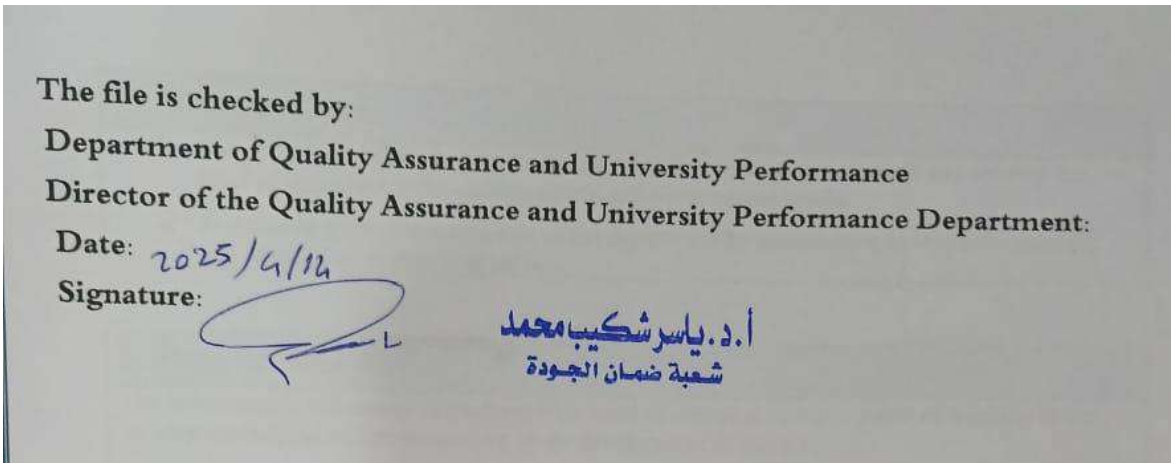
Academic or Professional Program Name: …**Bachelor**……

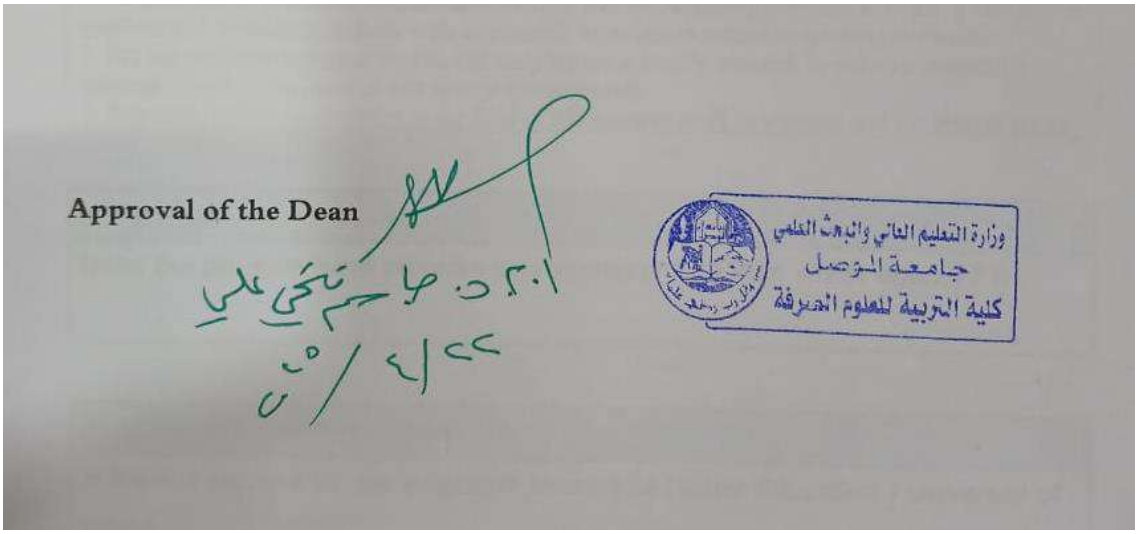
Final Certificate Name: … **Bachelor of Biology**……

Academic System: …Annual……

Description Preparation Date: 1/9/2024

File Completion Date: 1/9/2024





Approval of the Dean

1. Program Vision

1- The department seeks to provide an appropriate scientific environment and develop the level of education at the undergraduate and postgraduate levels.

2- 2- Achieving the pioneering role of the department by contributing to scientific progress and keeping up to date with all new.

2. Program Mission

The department's mission is to graduate high-level educational cadres capable of working in the country institutions and be supportive of the development of society.

3. Program Objectives

1- Preparation of graduates who are scientifically and educationally qualified to work in the field of teaching and providing students with appropriate experiences related to teaching methods.
2- Paying attention to higher studies and carrying out scientific research in order to protect the national wealth (plant, animal and natural environment).
3- Providing scientific expertise in the field of life sciences to all institutions and the private sector.

4. Program Accreditation

Does the program have program accreditation? And from which agency? No

5. Other external influences

Is there a sponsor for the program? Ministry of Higher Education / University of Mosul

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	8	12	6.8	Basic
College Requirements	9	34	19.3	Basic
Department Requirements	23	126	71.5	Basic
Summer Training	1	4	2.3	Application in Schools
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First	EDBI25F101	Biology	2	2
First	EDBI25F102	Plant anatomy	2	2
First	EDBI25F103	Cell biology	2	2
First	EDBI25F104	General chemistry	1	2
First	EDBI25F105	Geology	1	–
First	EDBI25F106	Educational Psychology	2	–
First	EDBI25F107	Computer Science	1	2
First	EDBI25F108	Arabic language	1	
First	EDBI25F109	Basics of Education	2	–
First	EDBI25F110	Human rights and democracy	1	–

First	EDBI25F111	English language	1	–
First	EDBI25F112	Lab. safety	1	–
Second	EDBI25F201	Invertebrates	2	2
Second	EDBI25F202	Plant taxonomy	2	2
Second	EDBI25F203	Histology	2	2
Second	EDBI25F204	Embryology	2	2
Second	EDBI25F205	Biochemistry	2	2
Second	EDBI25F206	Computers	1	2
Second	EDBI25F207	Secondary Education	2	–
Second	EDBI25F208	Developmental Psychology	2	–
Second	EDBI25F209	Statistics	2	1
Second	EDBI25F210	English language	1	–
Second	EDBI25F211	Baath crimes	1	–
Second	EDBI25F212	Arabic language	1	–
Third	EDBI25F301	Ecology and pollution	2	2
Third	EDBI25F302	Algae	2	2
Third	EDBI25F303	Chordates	2	2
Third	EDBI25F304	Genetics	2	2
Third	EDBI25F305	Mycology	2	2
Third	EDBI25F306	Teaching methods	2	–
Third	EDBI25F307	Mental health and Counselling	2	–
Third	EDBI25F308	Principles of scientific research	2	–
Third	EDBI25F309	Entomology	2	2
Fourth	EDBI25F401	Microbiology	2	2
Fourth	EDBI25F402	Parasitology	2	2
Fourth	EDBI25F403	Plant physiology	2	2
Fourth	EDBI25F404	Elective	2	–
Fourth	EDBI25F405	Animal Physiology	2	2
Fourth	EDBI25F406	Measurement and assessment	2	–
Fourth	EDBI25F407	Immunology	2	1
Fourth	---	Observation and application	2	2

Fourth	---	**Project**	**2**	-

8. Expected learning outcomes of the program

Knowledge	
Recruiting teachers	Scientific, professional and technical recruiting with a high standard of cultural and proficiency
Recruiting Scientific researchers	Achieving the basic principles of scientific research and treaching
Reinforcement of Scientific co-operation	Via training courses, workshops and symposia
Post-graduate studies opportunities	Through accomplishing scientific material and scientific teaching methods
Skills	
Teaching skills	Acquiring basic skills of teaching fields of biology
Scientific research skills	Developing scientific research in biology and teaching methods fields
Sustainable development skills	Preservation of state resources from delpletion in all fields
Practical skills	Developing student skills in the laboratory
Ethics	
Developing ethics and useful attitudes	In accordance with religion and habits and costumes
Developing attitudes towards teaching job	To face current challenges and developing overall education system
Establishing the principles of teaching	To limit toe abuse of their responsibilities in scientific and education fields
Disclosing the importance of science in human life	The great role of biology in people life.

9. Teaching and Learning Strategies

Theoretical and practical lecture, conversation and discussion, problem solving, performing practical experiment, project and application in school

10. Evaluation methods

Quizzes, practical semester exam, mid and final exam in first and second turn, preparing reports and homework.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements /Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Biology	Biotechnology, Plant physiology, ecology, parasitology, algae, comparative anatomy and histology, teaching methods, plant tissue culture			11	
Assistant professor	Biology	Biotechnology, parasitology, animal physiology, microbiology, teaching methods , plant taxonomy, embryology and histology, Immunology, invertebrates			19	
lecturer	Biology	Ecology, parasitology, algae, histology, embryology, plaant taxonomy, microbiology, bacterial genetics, mycology, biotechnology, animal physiology, entomology,			41	
Assistant lecturer	Biology	Plant physiology, mental health and counselling, animal physiology, ecology and microbiology			13	

Professional Development
Mentoring new faculty members
Using recent scientific references , teaching films , training ciurses and workshops
Professional development of faculty members
Proving new references for the library , participating in specialized training courses

12. **Acceptance Criterion**
Central admission through the ministry of higher education

13. **The most important sources of information about the program**
Central admission guide, electronic site of the department and internet

14. Program Development Plan
Updating the content of the program according to new references

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A 1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First	EDBI25F101	Biology	Basic	*	*		*	*	*		*		*		*
	EDBI25F102	Plant anatomy	Basic	*	*		*	*	*		*		*		*
	EDBI25F103	Cell biology	Basic	*	*		*	*	*		*		*		*
	EDBI25F104	General chemistry	Basic	*	*		*						*		
	EDBI25F105	Geology	Basic	*	*		*						*		
	EDBI25F106	Educational Psychology	Basic	*	*	*		*				*	*	*	*
	EDBI25F107	Computer Science	Basic	*	*				*		*				
	EDBI25F108	Arabic language	Basic	*										*	

	EDBI25F109	Basics of Education	Basic	*				*				*	*	*	*
	EDBI25F110	Human rights and democracy	Basic									*	*	*	
	EDBI25F111	English language	Basic	*										*	
	EDBI25F112	Lab. safety	Basic	*											
Second	EDBI25F201	Invertebrates	Basic	*	*		*	*	*		*		*		*
	EDBI25F202	Plant taxonomy	Basic	*	*		*	*	*		*		*		*
	EDBI25F203	Histology	Basic	*	*		*	*	*		*		*		*
	EDBI25F204	Embryology	Basic	*	*		*	*	*		*		*		*
	EDBI25F205	Biochemistry	Basic	*	*			*			*				*
	EDBI25F206	Computers	Basic	*	*			*			*				
	EDBI25F207	Secondary Education	Basic	*	*	*		*				*	*	*	*
	EDBI25F208	Psychology of growth	Basic	*	*	*		*				*	*	*	*
	EDBI25F209	Statistics	Basic	*	*						*				

	EDBI25F210	English language	Basic		*											*
	EDBI25F211	Baath crimes	Basic												*	*	*
	EDBI25F212	Arabic	Basic		*												*
	EDBI25F301	Ecology and pollution	Basic	*	*	*	*	*	*		*				*		*
	EDBI25F302	Algae	Basic	*	*	*	*	*	*		*				*		*
	EDBI25F303	Chordates	Basic	*	*	*	*	*	*		*				*		*
	EDBI25F304	Genetics	Basic	*	*	*	*	*	*		*				*		*
	EDBI25F305	Mycology	Basic	*	*	*	*	*	*		*				*		*
	EDBI25F306	Teaching methods	Basic	*	*	*		*					*		*	*	*
	EDBI25F307	Mental health and Counselling	Basic	*	*	*		*					*		*	*	*

	EDBI25F308	Principles of scientific research	Basic	*	*	*		*				*	*	*	*
	EDBI25F309	Entomology	Basic	*	*	*	*	*	*		*		*		*
	EDBI25F310	English language	Basic		*										*
Fourth	EDBI25F401	Microbiology	Basic	*	*	*	*	*	*	*	*		*		*
	EDBI25F402	Parasitology	Basic	*	*	*	*	*	*	*	*		*		*
	EDBI25F403	Plant physiology	Basic	*	*	*	*	*	*		*		*		*
	EDBI25F404	Elective	optional	*	*	*	*	*	*	*	*		*		*
	EDBI25F405	Animal Physiology	Basic	*	*	*	*	*	*		*		*		*
	EDBI25F406	Measurement and assessment	Basic	*	*	*		*				*	*	*	*
	EDBI25F407	Immunology	Basic	*	*	*	*	*	*	*	*		*		*
	EDBI25F408	English language	Basic	*										*	*

	–––	Observation and application	Basic	*	*	*		*				*	*	*	*
	–––	Project	Basic	*	*	*	*	*	*	*	*		*		*

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Form

University: Mosul College: Education for Pure Sciences Department: Biology

1. Course Name and Stage : Cell Biology / first stage

2. Course Code: **EDBI25F103**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Class, Classroom

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

2/2

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

Name: Prof. Dr. Qutaiba Shuaib Al-Nema dr.qutaibashuaib@uomosul.edu.iq
Prof. Dr. Shifa Mahdi Salih dr.shifasalih@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• **Knowing the basic principles of Cell Biology** • **Knowing the ultrastructure of cells** • **Knowing the function of cellular organelles**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
first	2	Choosing an appropriate organism for study	Introduction to Cell Biology(The Cell Theory : A Brief History)	Lecture	quizzes
Second	2	Knowing the organism	Cell Chemistry : The Importance of Water	Lecture	quizzes
Third	2	Knowing the organism	The Macromolecules of the Cell (Proteins , poly saccharides).	Lecture	quizzes
Fourth	2	Understanding basic principles	Lipids , Nucleic Acids	experiment	Quiz, report , homework
Fifth	2	Practical application of law	Cells and Organelles :Prokaryotes	Problem solving	Homework
Sixth	2	Understanding basic principles	Viruses and Eukaryotes	Problem solving	Homework
Seventh	2	Understanding basic principles and appl	Membranes : Models of Membrane Structure	Problem solving	Homework

		ications			
Eighth	2	Understanding basic principles and applications	Transport Across Membrane : Simple Diffusion , Facilitated Diffusion and Active Transport	Lecture	quizzes
Nineth	2	Understanding the basic principles of gene interaction	Exocytosis and Endocytosis.	Lecture	quizzes
	Mid Exam				
Tenth	2	Understanding the basic principles of gene interaction	The Endomembrane System : The Endoplasmic Reticulum, The Golgi Apparatus	Lecture	quizzes
Eleventh	2	Understanding bas principles and applications	Lysosomes , Vacuoles	Problem solving	Homework
Twelfth	2	Understanding basic principles and applications	Mitochondria	Problem solving	Homework
Thirteen	2	Understanding problem solving and crosses	Plastids	Problem solvi	Homework
Fourteenth	2	Understanding problem solving and crosses	Cytoskeleton : Actin filaments , Intermediate Filaments, Microtubules	Problem solving	Homework
Fifteenth	2	Understanding the basic principles	Nucleus	Problem solving	Homework
Sixteenth	2	Understanding the basic principles and crosses	Cell Cycle, Introduction to the Cell Cycle	Problem solving	Homework
Seventeenth	2	Understanding problem solving and crosses	Cell Division , Mitosis and Cytokinesis	Problem solving	Homework
Eighteenth	2	Understanding problem solving and crosses	Meiosis	Problem solving	Homework
Nineteenth	2	Understanding problem solving and crosses	Apoptosis	Problem solving	Homework
Twenty	2	Understanding problem solving and crosses	Cell signaling	Problem solving	Homework
Twenty one	2	Understanding problem solving and crosses	Types of chromosomes	Problem solving	Homework
	Final Exam				
11. Course Evaluation and Marks					

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)	1- Cell Biology Third Edition by Thomas D. Pollard, William C. Earnshaw, Jennifer Lippincott-Schwartz and Graham T. Johnson (2017) USA. 2. Becker's World of The Cell by Jeff Hardin and Gregory Bertoni (2018).Person Education Limited , England.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Molecular Biology of The Cell , Sixth Edition By Bruce Alberts *et al.*,2015, Published by Garland Science, Taylor & Francis Group, LLC, an informa business, 711 Third Avenue, New York, NY 10017, US.
Electronic References, Websites	https://www.nature.com/scitable/topic/cell-biology-13906536/ https://www.ibiology.org/educators-resources
Percentage of Curriculum update	20%

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Sciences Department: Biology

1. Course Name and Stage : Practical Cell Biology / first stage

2. Course Code: **EDBI25F103**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Class, Classroom

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

2/2

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

Name: Prof. Dr. Qutaiba Shuaib Al-Nema dr.qutaibashuaib@uomosul.edu.iq
Prof. Dr. Shifa Mahdi Salih dr.shifasalih@uomosul.edu.iq
Assistant prof. Dr. Raghad mohammed raghad.mohammed@uomosul.edu.iq
Assistant L. Maha Falah maha.falah@uomosul.edu.iq
Assistant L. Ahlam Ahmed ahlam99@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• **Knowing the basic principles of Cell Biology** • **Knowing the ultrastructure of cells** • **Knowing the function of cellular organelles**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

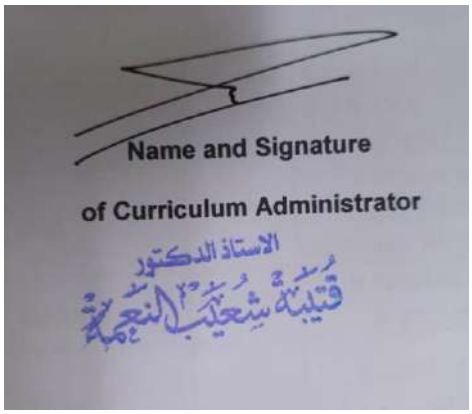
10. Course Structure

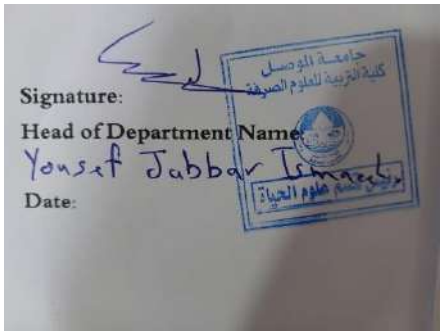
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Choosing an appropriate organism for study	Types of microscope	Lecture	quizzes
Second	2	Knowing the organism	Diversity of cells	Lecture	quizzes
Third	2	Knowing the organism	Micrometry	Lecture	quizzes
Fourth	2	Understanding basic principles	Video about Types of microscopes	experiment	Quiz, report , homework
Fifth	2	Practical application of law	The cell wall and modification of plasma membrane	Problem solving	Homework
Sixth	2	Understanding basic principles	Cytoplasmic organelles: Golgi complex	Problem solving	Homework

Seventh	2	Understanding basic principles and appl ications	Endoplasmic reticulum	Problem solving	Homework
Eighth	2	Understanding basic principles and applications	Video about Cytoplasmic organelles	Video lecture	quizzes
Mid exam					
Nineth	2	Understanding the basic principles of gene interaction	Plastids	Lecture	quizzes
Tenth	2	Understanding th basic principles o gene interaction	Paraplasma	Lecture	quizzes
Eleventh	2	Understanding basic principles and applications	The nucleus	Problem solving	Homework
Twelfth	2	Understanding basic principles and applications	Video about Plastids and nucleus	Video lectur	Homework
Thirteen	2	Understanding problem solving and crosses	Cell cycle and cell division	Problem solving	Homework
Fourteenth	2	Understanding problem solving a crosses	Mitosis and Cytokinesis	Problem solving	Homework
Fifteenth	2	Understanding the basic principles	Meiosis	Problem solving	Homework
Sixteenth	2	Understanding the basic principles and crosses	Video about cell divisions	Video lecture	Homework
Seventeenth	2	Understanding problem solving and crosses	Types of chromosomes	Problem solving	Homework
Eighteenth	2	Understanding problem solving and crosses	Special chromosomes	Problem solving	Homework
Nineteenth	2	Understanding problem solving and crosses	Video about chromosomes	Video lecture	Homework
	Final Exam				

11. Course Evaluation and Marks	
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)	1- Cell Biology Third Edition by Thomas D. Pollard, William C. Earnshaw, Jennifer Lippincott-Schwartz and Graham T. Johnson (

	2017) USA. 2. Becker's World of The Cell by Jeff Hardin and Gregory Bertoni (2018).Person Education Limited , England.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Molecular Biology of The Cell , Sixth Edition By Bruce Alberts *et al*.,2015, Published by Garland Science, Taylor & Francis Group, LLC, an informa business, 711 Third Avenue, New York, NY 10017, US.
Electronic References, Websites	https://www.nature.com/scitable/topic/cell-biology-13906536/ https://www.ibiology.org/educators-resources
Percentage of Curriculum update	20%





Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul **College:** Education for Pure Sciences

Department or Branch: Biology

1. Course Name and Stage,
plant Anatomy, 1
2. Course Code:
EDBI25F102
3. Semester / Year:
2024-2025
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hours /week
7. Course administrator's name (mention all, if more than one name) 8. and Scientific title
Name: Name: Assistant Prof. Dr. Raghad Nawaf Gergees E mail:raghadnawaf@uomosul.edu.iq
9. Course Objectives

Subject Objectives	• Learn about the basic principles of plant anatomy • Learn about the anatomy of different plant parts

10. Teaching and Learning Strategies

Strategy	cal and theoretical lecture , talk and discussions, problem solving , performing

11. Course Structure

Week	Hours	Required	Unit or subject nar	Learning method

		Learning Outcomes		
first		Form a gene idea about the material	Introduction to plant anatomy	Lecture
Second		Identify layer The wall and its manufacturing mechanism	Plant cell wall	Lecture
Third		Identify stomata	stomata	Lecture
Fourth		Identify protoplasts ar their applications	protoplasts	experiment
Fifth		Identify living components	living components	Problem solving
Sixth		Identify non-living components	non-living component	experiment
Seventh		Identifying meristematic tissues	meristematic tissues	Problem solving
Eighth		Identifying permanent tissues	permanent tissues	experiment
Nineth		Identifying th collenchyma tissue	collenchyma tissue	Problem solving

Tenth		Identify the types of sclerenchyma cells	Sclerenchyma tissue	experiment
Eleventh		Know the components o xylem	Xylem tissue	experiment
Twelfth		Exam		
Thirteen		Know the components o phloem tissue	phloem tissue	Lecture
Fourteen		Study of epiderms	epiderms tissue	Problem solving
Fifteenth		Study of Prederm	Prederm	Problem solving
Sixteenth		Identify the internal structure of th root	structure of the root	lecture
Seventeh		Identify the internal structure of th stem	structure of the stem	lecture

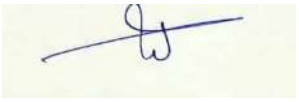
12. Course Evaluation and Marks

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, o

13. Learning and Teaching Resources

Required textbooks (curricular books, if ar	The methodological book in Arabic Plant kingdom D. Hussein Al-Arousi
Main references (sources)	Basics of botany anatomy – Dr. Qaiser Naguib Saleh

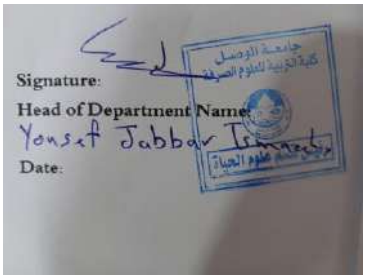
	Botany – Jaafar Al-Khayyat
Recommended books and referenc (scientific journals, reports…)	Anatomy of plant organs Muhammad Miloul Khalifa
Electronic References, Websites	https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web& book.
Percentage of Curriculum update	10%



Name and Signature

of Curriculum Administrator

Raghad Nawaf Gergees Alzaidy



Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Sciences
Department or Branch: Biology Department

1. Course Name/ Stage: Practical plant anatomy/ First
2. Course Code: EDBI24F102
3. Semester / Year: 2024−2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory/Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2/2
7. Course administrator's name (mention all, if more than one name)
Name: Raghad Nawaf Jergees Email: raghadnawaf@uomosul.edu.iq Assistant Professor Dr. Fawz Abdulsalam, Assist lect .Aseel Khazal Ali Taghreed Nawaf Ahmad, Islam Yasir Abdullah, and Heba Amm Mahmood
8. Course Objectives

Course Objectives	• **Students acquire the basic principles of plant anatomy** ▪ **Students acquires laboratory skills and enable them to distinguish between different types of plant tissues**

9. Teaching and Learning Strategies	
Strategy	Lecture, Conversation and discussions, homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Basic principles	Plant Anatomy	Lecture and slides	Quiz and oral questions
2	2	Structure and function	Plant cell wall	Lecture and slides	Quiz and oral questions
3	2	Structure and function	stomata	Lecture and slides	Quiz and oral questions
4	2	Structure and function	Protoplast	Lecture and slides	Quiz and oral questions
5	2	Structure and function	Living constituents	Lecture and slides	Quiz and oral questions
6	2	Structure and function	Non living constituents	Lecture and slides	Quiz and oral questions
7	2	Structure and function	Permeant tissues	Lecture and slides	Quiz and oral questions
8	2	Structure and function	Collenchyma part 1	Lecture and slides	Quiz and oral questions
9	2	Structure and function	Collenchyma part 2	Lecture and slides	Quiz and oral questions
10	2	Structure and function	Sclerenchyma part 1	Lecture and slides	Quiz and oral questions
11	2	Structure and function	Sclerenchyma part 2	Lecture and slides	Quiz and oral questions
12	2	Structure and function	Xylem part 1	Lecture and slides	Quiz and oral questions
13	2	Structure and function	Xylem part 2	Lecture and slides	Quiz and oral questions
14	1		Exam		Quiz and oral questions
15	2	Structure and function	Phloem part 1	Lecture and slides	Quiz and oral questions

16	2	Structure and function	Phloem part 2	Lecture and slides	Quiz and oral questions
17	2	Structure and function	Periderm	Lecture and slides	Quiz and oral questions
18	2	Structure and function	Internal structure of of root	Lecture and slides	Quiz and oral questions
19	2	Structure and function	Cross section of root	Lecture and slides	Quiz and oral questions
20	2	Structure and function	Internal structure of stem	Lecture and slides	Quiz and oral questions
21	2	Structure and function	Cross section of stem	Lecture and slides	Quiz and oral questions
22	2	Structure and function	Internal structure of leaf	Lecture and slides	Quiz and oral questions
23	2	Structure and function	Cross section of leaf	Lecture and slides	Quiz and oral questions
24	2	Structure and function	Diffused wood pores	Lecture and slides	Quiz and oral questions
25	2	Structure and function	Diffused wood pores	Lecture and slides	Quiz and oral questions
26	2	Structure and function	Wood annular pores	Lecture and slides	Quiz and oral questions
27	2	Structure and function	Wood annular pores	Lecture and slides	Quiz and oral questions
28	1		Exam	Lecture and slides	

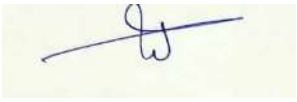
11. Course Evaluation

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)	Basics of plant anatomy (Arabic) Dr. Qiasr najeeb Salih
Main references (sources)	Plant Science – Jaffar Al-Khayyat Plant kingdom- Dr. Hussein Alorosy
Recommended books and references (scientific journals, reports…)	Alkhazraji, Talib Oaid and Falih Mohammed Aziz, 1991. Plant anatomy and practical microscopic preparations
Electronic References, Websites	https://byjus.com/neet/anatomy-of-root-

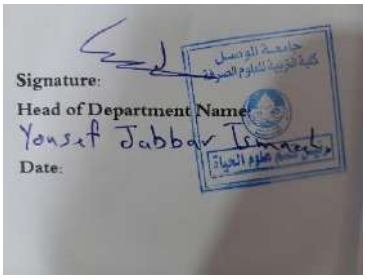
	stem-and-leaf/
Percentage of Curriculum update	0%



Dr. Raghad Nawaf Jergees

Name and Signature

of Curriculum Administrator



Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education of pure science
Department or Branch: chemistry

1. Course Name: Practical Organic Chemistry / First Stage - Department Chemistry

2. Course Code:**EDBI25-104**

3. Semester / Year: 2024- 2023

4. Description Preparation Date:1/9/2023 -81/8/2024

5. Available Attendance Forms: in person - electronic classes

6. Number of Credit Hours (Total) / Number of Units (Total) 2 hours per lecture / 7 units

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

Name: Name:. Dr. Ghufran Thanoon Siddiq / Email: gsadeek @uomosul.edu.iq
Name.Dr.osama mohammed
Dr. aoees nazzar

8. Course Objectives

Course Objectives	• **The student learns the importance organic chemistry, its branches, composition of compounds, a methods of preparing them**

	• **1. Students are introduced to subject of organic chemistry and role in understanding the principles modern chemistry and its daily uses** • **2. How to use this knowledge in d life and link it to other scient phenomena** • **3. It makes students of colleges education for pure sciences feel value of the chemistry subject a how they deal with the students of university** • **4- Performing their work in resea laboratories** • **5. Urging students to perform th duties not only as teachers, but a in other state departments……**

9. Teaching and Learning Strategies

Strategy	Theoretical lecture, dialogue and discussions, presenting examples and solving problems, homework, Daily activity of students and recording contributions for ea male and female student.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	The importar of organic chemistry	Organic compounds, electronic distribution, ior bonding, electronegativit types of covaler and hydrogen bonds	methane	Daily a monthl exams
2	2	The types of bonds	Methods of	Cyclohex	Daily a monthl

			forming single, double and tripl bonds, breaking	ne	exams
2	2	Types of Alkane	bonds chemical reactions, alkanes, cyclic alkanes, naming alkanes, preparing alkanes, and methods of preparing them	a lectur lecture	Daily a monthl exams
3	2	Cycloalkane			
4	2		Synthesis of cycloalkane and methods of preparations	lecture	Daily a monthl exams
5	2	Alkene	Synthesis of alkene ,method preparation	Lecture	Daily and monthl exams
6	2				
7	2	Alkene	Rearrangement of carbonium io and mechanism dehalohydrogen tition	Lecture	
8	2	Alkene	Electrophilic addition reactio of alkenes	Lecture	
9	2	Alkenes	Addition of hydrogen , carbine , Simon		

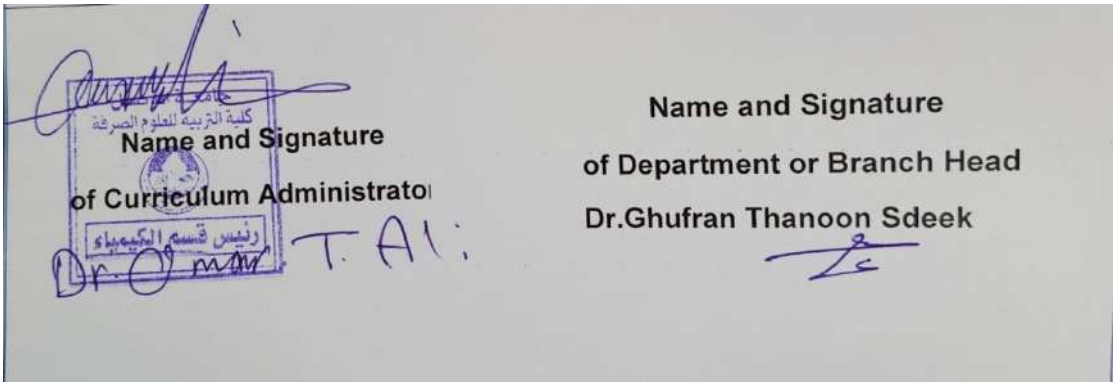
10	2	Alkene	smith reaction Addition of free		
11	2	dienes	Synthesis of dienes		
12	2	Dienes	Polymers of dienes		
13	2	Dienes	Delis alder , oxidation by super acids ,dimer of alkene ,free radical additions	Lecture	
14	2	Alkyl halide	Types of dienes Polymers of dienes ,synthesis and preparation	Lecture	
15	2	Aromatic componds	Ractions , name		

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 5 daily exam,20 point in mid year and the final exam from 50

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Organic chemistry,Morrison and Boyd
Recommended books and references (scientific journals, reports…)	
Percentage of curriculum update	


Name and Signature
of Curriculum Administrator
Name and Signature
of Department or Branch Head
Dr.Ghufran Thanoon Sdeek

Course Description Form

University of Mosul

College: Education for pure Science Department: Chemistry

1. Course Name: Organic Chemistry/first stage/Bioscience
2. Course Code: EDBI25-104
3. Semester / Year: First Semester / 2024-2025
4. Description Preparation Date*:* 2024/11/1– 2025/8/ 31
5. Available Attendance Forms: The daily attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
14 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Linda Riyadh Abdul-Raheem Email: linda.reyadh@uomosul.edu.iq
8. Course Objectives

Course Objectives	**1. Students learned about the subject of organic chemistry and its role in understanding the principles of modern chemistry and its daily uses** **2. How to use this knowledge in daily life and link it to other scientific phenomena** **3. It makes students at colleges of education for pure sciences feel the value of chemistry and how they deal with school students after graduation** **4. Practicing their specialization as**

	schoolteachers **5. They can perform their work in research laboratories** **6. Urging students to perform their duties not only as teachers, but also in other state departments** **7. Utilizing the student's scientific knowledge in a way that helps him face life problems in the field of research**

9. Teaching and Learning Strategies

Strategy	Theoretical lecture, dialogue and discussions, problem solving, reports and daily assignments.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1x3=3	The acquisition of knowledge In the field of organic chemistry In preparation for some Concepts Related basic With branches of science organic chemistry	*The importance of organic chemistry *Organic compounds *Atom and electronic distribution *Chemical bonds and their types	theoretical + Electronic	Exam and activity Daily
2	1x3=3	Gain knowledge in the field of organic chemistry	*Hybridization *Types of hybridization and knowing some Chemical terminology	theoretical + Electronic	Exam and activity Daily

3	1x3=3	Gain knowledge in the field of organic chemistry	Alkanes Naming alkanes, Physical properties and chemical reactions Preparation	theoretical + Electronic	Exam and activity Daily
4	1x3=3	Gain knowledge in the field of organic chemistry	Cycloalkanes Preparation of cycloalkanes Cycloalkanes reactions	theoretical + Electronic	Exam and activity Daily
5	1x3=3	Gain knowledge in the field of organic chemistry	Alkenes Naming alkenes, Physical properties and chemical reactions	theoretical + Electronic	Exam and activity Daily
6	1x3=3	Gain knowledge in the field of organic chemistry	Alkenes reactions	theoretical + Electronic	Exam and activity Daily
7	1x3=3	Gain knowledge in the field of organic chemistry	Preparation of alkenes Diagnosis of alkenes	theoretical + Electronic	Exam and activity Daily
8	1x3=3	Gain knowledge in the field of organic chemistry	Dienes Its types Its interactions and methods of preparation	theoretical + Electronic	Exam and activity Daily
9	1x3=3	Gain knowledge in the field of organic chemistry	Alkynes Its name and properties	theoretical + Electronic	Exam and activity Daily

10	1x3=3	Gain knowledge in the field of organic chemistry	Preparation of alkynes Their interactions Diagnosis of alkynes	theoretical + Electronic	Exam and activity Daily
11	1x3=3	Gain knowledge in the field of organic chemistry	Aromatic hydrocarbons Benzene structure Aromatic character	theoretical + Electronic	Exam and activity Daily
12	1x3=3	Gain knowledge in the field of organic chemistry	Naming benzene derivatives Effectiveness and direction	theoretical + Electronic	Exam and activity Daily
13	1x3=3	Gain knowledge in the field of organic chemistry	Interactions of aromatic compounds And prepare them.	theoretical + Electronic	Exam and activity Daily
14	1x3=3	Gain knowledge in the field of organic chemistry	Given curriculum	theoretical	Mid-year examination (First semester)

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)	• Organic chemistry translated by Prof. Dr. Saleh Al-Qadiri and others
Main references (sources)	• Fundamentals of Organic Chemistry, written by Muhammad Magdy Wasel
Recommended books and references (scientific journals, reports…)	• Foundations of Organic Chemistry, Prof. Dr. Muhammad Nizar Ibrahim 2008
Electronic References, Websites	https://www.uoanbar.edu.iq
Curriculum update rate	20%

Name and Signature
of the Department Head

Dr. Omar

Name and Signature
of Curriculum Administrator

Dr. Linda Reyadh Abdul-Razzaq

Course Description Form

University: Mosul College: Education for pure science
Department or Branch: Biology

1. 1. Course Name: Biology/ First class
2. 2. Course Code: EDBI25F101
3. 3. Semester / Year: 2024-2025
4. 4. Description Preparation Date: 1/9/2024
5. 5. Available Attendance Forms: Laboratory, Classroom
6. 6. Number of Credit Hours (Total) / Number of Units (Total)
2/4
7. Course administrator's name (mention all, if more than one name)
Name: Ass.Prof.Dr. Baidaa A. M Salah **Email: baidaamohammed@uomosul.edu.iq** **Name: L. shima Mohamed Hesham** **Email: sshaymamhisham@uomosul.edu.iq** **Name: Dr. Rasha Fawzi Abdulrazq** **Email: Rasha.fawzi2016@uomosul.edu.iq** **Name: Dr. Zena Wageh** **Email: dr.zena.algader@uomosul.edu.iq**
8. Course Objectives

Course Objectives	• **Knowing the basic principles of biology**

	• **Knowing the practical applications of Biology in Life and Research**

9. Teaching and Learni

10. ng Strategies

Strategy	**Practical and theoretical lecture, talk and discussions, problem solving , performing practical experiments , reports and homework**

11. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Skill and knowledge	Introduction to biology	Lecture and PowerPoint presentation	Quiz and oral questions
2	4	Skill and knowledge	Overview: A historical review of the growth of biology	Lecture and PowerPoint presentation	Quiz and oral questions
3	4	Skill and knowledge	Evolution of biology, the importance of biology	Lecture and PowerPoint presentation	Quiz and oral questions
4	4	Skill and knowledge	Branches of biology, characteristics of life,	Lecture and PowerPoint presentation	Quiz and oral questions

5	**4**	**Skill and knowledge**	**The main method of construction of living matter**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
6	**4**	**Skill and knowledge**	**Cell divisions**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
7	**4**	**Skill and knowledge**	**Definition of qualities of life**	**Lecture and power point presentation**	**Quiz and oral questions**
8	**4**	**Skill and knowledge**	**Classification of living organisms, historical stages**	**Lecture and power point presentation**	**Quiz and oral questions**
9	**4**	**Skill and knowledge**	**Classification systems**	**Lecture and power point presentation**	**Quiz and oral questions**
10	**4**	**Skill and knowledge**	**Basics of animals classification**	**Lecture and power point presentation**	**Quiz and oral questions**
11	**4**	**Skill and knowledge**	**Reproduction and growth**	**Lecture and power point presentation**	**Quiz and oral questions**
12	**4**	**Skill and knowledge**	**Coordination in animals**	**Lecture and power point presentation**	**Quiz and oral questions**
13	**4**	**Skill and knowledge**	**Classification, of historical stages**	**Lecture and power point presentation**	**Quiz and oral questions**
14	**4**	**Skill and knowledge**	**Basics of Plant classification**	**Lecture and power point presentation**	**Quiz and oral questions**
15	**1**	**Semester exam**	**-**	**-**	**-**
16	**4**	**Skill and knowledge**	**The concept of species**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
17	**4**	**Skill and knowledge**	**Reproduaction and growth in animals**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**

18	**4**	**Skill and knowledge**	**Reproduction and growth in the plants Hormonal coordination**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
19	**4**	**Skill and knowledge**	**Introduction Coordination in the animals**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
20	**4**	**Skill and knowledge**	**Coordination in plants**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
21	**4**	**Skill and knowledge**	**Evolution, theories of evolution**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
22	**4**	**Skill and knowledge**	**The evolution of low animals Evolution of vertebrates**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
23	**4**	**Skill and knowledge**	**Behavior of living organisms Nervous system and behavior**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
24	**4**	**Skill and knowledge**	**Innate and learned behavior Orientation in time and place**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
25	**4**	**Skill and knowledge**	**Mass movement and migration The monotony and clock of life Hierarchical dominance in animal groups, examples of living behavior**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**

26	**4**	**Skill and knowledge**	**Some concepts about the environment and sources of its pollution**	**Lecture and PowerPoint presentation**	**Quiz and oral questions**
27	**--**	**-**	**------**	**-**	**-**
28					
29					
30			**Semester exam**		

12. 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

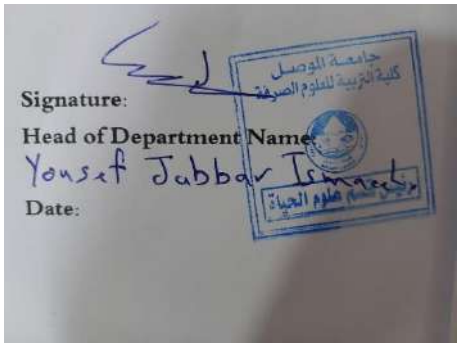
13. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Biology Peter H. Raven et al** **noor-book.com/mc3rks** **Botany, written by Jaafar Al-Khayyat**
Main references (sources)	**For the Kingdom of Plants, Dr. Hussein Al-Arousi** **Biology Peter H. Raven et al** **noor-book.com/mc3rks** **The world of non-flowering plants, K-Smith**
Recommended books and references (scientific journals, reports...)	**Zoology For B.Sc. Students Semester V: Paper 2, Diversity of Chordates and Comparative Anatomy | Lab on Virtual Dissection, Anatomy, Economic Zoology and Parasitology | NEP 2020 Uttar Pradesh** **Plant groups, Dr. Samir Khalaf**
Electronic References, Websites	**https://byjus.com/biology/zoology/** **https://ar.wikipedia.org/wiki/%D8%B9%D9%84%D9%85_%D8%A7%D9%84%D9%86%D8%A8%D8%A7%D8%AA**

Ass.Prof.Dr. Baidaa A. M Salah

Name and Signature

of Curriculum Administrator



Name and Signature

of Department or Branch Head

Course Description Form

University:Mosul College:Education for Pure Sciences Department:Biology

1. Course Name: Practical Biology

2. Course Code: EDBI25F101

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: : Laboratory , Classroom

6. Number of Credit Hours (Total) 6 hours / Number of Units (Total) 3 units

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

Name: Dr. Bushra Esam Kamil
Email: bush2019ra@uomosul.edu.iq
Name: Dr. Yousra Abdulrazzaq Abdullah
Email: yousra.alrefaee@uomosul.edu.iq
Name: Dr. Noor Aamer Mohammed Ali
Email: noorameeralaubidi@uomosul.edu.iq
Name: Dr. Noor Nabeel Yahya
Email: noor.nabeel@uomosul.edu.iq
Name: Dr. Zainulabdeen Hamzah Al-Khafaji
Email: zainulabdeen.hamzah@uomosul.edu.iq
Name: Waffaa Isam abd al qader
Email: wsinjry@uomosul.edu.iq
Name: Reem Adnan Abdulrazaq
Email: reem.alshanona@uomosul.eud.iq
Name: Rulla Sadallah Najim AL-Niemi
Email: rullaalniemi@uomosul.edu.iq
Name: Raghad Ahmed Abbas
Email: arooda20102012@uomosul.eud.iq
Name: Ahmed Nabeel Saeed
Email: ahmed.nabeel@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of biology** • **Knowing the practical applications of**

	Biology in Life and Research

9. Teaching and Learni

10. ng Strategies

Strategy	Practical and theoretical lecture, talk and discussions, problem solving , performing practical experiments , reports and homework

11. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	6 practical	Understand the basic principles	Compound light microscope	The board and presentation	Quiz , preparing reports and homework
Second	6 practical	Understand the basic principles	Bacteria	The board and presentation	Quiz , preparing reports and homework
Third	6 practical	Understand the basic principles	Fungi	The board and presentation	Quiz , preparing reports and homework
Fourth	6 practical	Understand the basic principles	Algae	The board and presentation	Quiz , preparing reports and homework
Fifth	6 practical	Understand The basic principles	Flowering and non-flowering plants	The board and presentation	Quiz , preparing reports and homework
Sixth	6 practical	Understand The basic principles	The Root	The board and presentation	Quiz , Preparing reports and homework
Seventh	6 practical	Understand the basic principle	The Steam	The board and presentation	Quiz , preparing reports and homework
Eighth	6 practical	Understand The basic principles	Leaves	The board and presentation	Quiz , preparing reports and homework
Ninth	6 practical	Understand The basic rinciples	Flowers	The board and presentation	Quiz , preparing reports and homework
Tenth	6 practical	Understand The basic principles	Fruits	The board and presentation	Quiz , preparing reports and homework

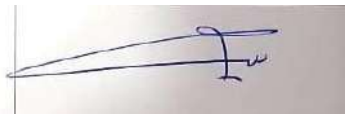
Eleventh	6 practical	Understand The basic principles	The Cell	The board and presentation	Quiz , preparing reports and homework
Twelfth	6 practical	Understand The basic principles	Cell sizes	The board and presentation	Quiz , preparing reports and homework
Thirteen	6 practical	Understand The basic principles	Histology	The board And presentation	Quiz , preparing Reports and homework
Fourteen	6 practical	UnderstandThe basic principles	Classification of Tissues	The board and presentation	Quiz , preparing reports and homework
Fifteenth	6 practical	UnderstandThe basic principles	Life clock	The board and presentation	Quiz , preparing reports and homework

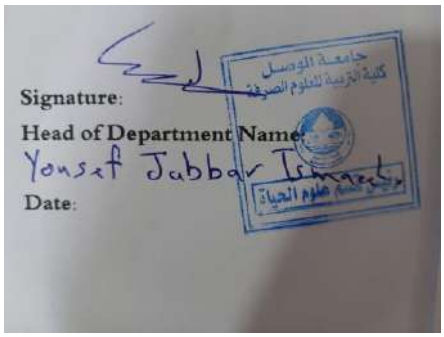
12. Course Evaluation

Grade distribution: 20 marks for the first and second semester practical exams,
10 marks for oral exams, reports and daily preparation.

13. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Biology Peter H. Raven Arabic Textbook Botany - Jaafar Al-Khayat The Plant Kingdom - Dr. Hussein Al-Arousi The World of Non-Crystalline Plants - K. Smith Fundamentals of Zoology - Muhammad Kamal Abdel-Mu'izz
Main references (sources)	Plant Groups - Dr. Samir Khalaf Abdullah Zoology: Arabic Textbook
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://byjus.com/biology/zoology/ https://ar.wikipedia.org/wiki/%D8%B9%D9%84%D





Name and signature of the decision holder

Lecturer Dr. Yousra Abdulrazzaq Abdullah

Name and signature of the head of the department

Professor Dr. Youssef Jabbar Ismail

Course Description Form

University : Mosul College : Education for Pure Science

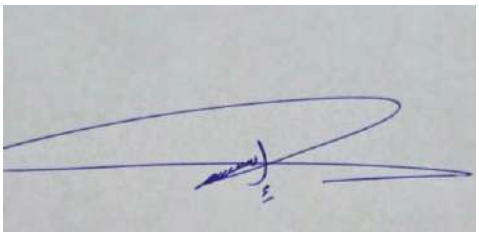
Department Biology

1. Course Name/ Stage: Arabic Language/ First stage
2. Course Code: EDBI25F108
3. Semester / Year:2024 – 2025
4. Description Preparation Date: 1 / 9 / 2024
5. Available Attendance Forms: Lecture .
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hour each class / 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Lecturer. Enas Talal Ahmed Email:
8. Course Objectives

Course Objectives	**The course aims to empower students with Arabic language skills and issues** • ..... • .....
9. Teaching and Learning Strategies	
Strategy	Lecture and discussions
10. Course Structure	

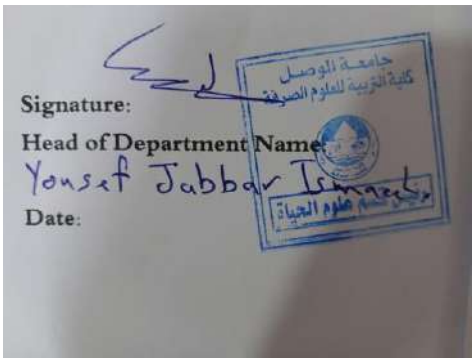
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	1	General concepts	Hamza in arabic	Lecture	Homework
Second	1	General concepts	Writing the lette Dhad and Dhad	Lecture	Homework
Third	1	General concepts	**Punctuation marks**	Lecture	Homework
Fourth	1	General concepts	**Writing the short a long alif**	Lecture	Homework
Fifth	1	Basic concepts	Number rules a numerical adjectives	Lecture	Homework
Sixth	1	Basic concepts	Original and second diacritical marks	Lecture	Homework
Seventh	1	Basic concepts	The Arabic senter and its types	Lecture	Homework
Eighth	1	Basic concepts	Actual sentence	Lecture	Homework
Nineth	1	Basic concepts	actor	Lecture	Homework
Tenth	1	Basic concepts	The representative the actor	Lecture	Homework
Eleventh	1	Basic concepts	Nominal sentence	Lecture	Homework
Twelfth	1	Basic concepts	The subject and t predicate	Lecture	Homework
Thirteen	1	Basic concepts	Modal Verbs	Lecture	Homework
Fourteenth	1	Basic concepts	The letters a already suspicious	Lecture	Homework
Fifteenth	1	General basic concepts	Definition literature and divisions	Lecture	Homework
Sixteenth	1	General basic concepts	Pre- Islamic literature	Lecture	Homework
Seventeenth	1	General basic concepts	Islamic literature	Lecture	Homework
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)	Facilitator in general Arabic for non-Specialist departments, Ziad Shuli General Grammer of Arabic language
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Methods of teaching Arabic , Saleh Nuseirat
Electronic References, Websites	
Percentage of curriculum update	



Assistant Lecturer. Enas Talal Ahmed

Curriculum administrator



Course Description Form

University: Mosul College: College of Education for Pure Sciences
Department or Branch: Biology

1. Course Name and Stage: Educational & Developmental psychology, And Ethics of the education profession/ Stage : first

2. Course Code: EDBI25F106

3. Semester / Year: 2024 – 2025

4. Description Preparation Date: 1 / 9 / 2024

5. Available Attendance Forms: In-person - electronic class

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

2 hours / 4 units

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

Name: Assist. Ahmed Adeeb Qanbar Shehab
Email : ahmed.adeeb@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• Identify the basic concepts of educational psychology. • Identify the basic concepts of developmental psychology. • The student learns about the most important basics and principles of teaching ethics.

9. Teaching and Learning Strategies

Strategy	Theoretical and practical lectures, dialogue and discussions, brainstorming, problem solving, conducting practical experiments, reports and daily assignments.

10. Course Structure

Week	Hours	Required Learning Outcomes	First	Learning method	Evaluation method

First	2 hours	That the student knows the concept of educational psychology.	Historical development of psychology, and an introduction to educational psychology	Lecture and discussion	Quizzes
Second	2 hours	The student should distinguish between schools of psychology in interpreting the human psyche	The nature of psychology, schools of psychology and its objectives	Lecture and discussion	Quizzes
Third	2 hours	For the student to understand behavior and the factors influencing behavior.	Define behavior and influencing factors	Lecture and discussion	Quizzes
Fourth	2 hours	For the student to analyze the factors affecting attention.	Attention, distractions, and factors affecting attention.	Lecture and discussion	Quizzes
Fifth	2 hours	For the student to understand the meaning of sensation and sensory perception.	Meaning of sensation, perception, and factors Affecting feeling and perception	Lecture and discussion	Homework
Sixth	2 hours	For the student to understand the meaning of remembering and forgetting and the factors affecting forgetting and remembering.	The meaning of remembering, the meaning of forgetting and types Memory and factors affecting it Remembering and forgetting	Lecture and discussion	Quizzes and homework
Seventh	2 hours	That the student	The concept and	Lecture and	Homework

		knows the concept of feedback.	types of feedback.	discussion And solve problems	
Eighth	2 hours	For the student to understand the meaning of individual differences and how to take them into account in teaching.	Its meaning and effect in education and how Consider it in teaching	Lecture and discussion	Quizzes
Ninth	2 hours	For the student to distinguish between learning theories in explaining learning.	Learning theories.	Lecture and brainstormin g	Quizzes
Tenth	2 hours	A comprehensive review of educational psychology		Lecture and discussion	Quizzes and Homework
Eleventh	2 hours	That the student knows the concept of developmental psychology.	Developmental psychology, definition and importance	Lecture and discussion	Quizzes and Homework
Twelve	2 hours	The student should understand the general principles.	General principles of growth and developmental stages.	Lecture, discussion and problem solving	Homework
Thirteent h	2 hours	For the student to analyze the genetic and environmental factors affecting humans.	genetic and environmental factors.	Lecture	Quizzes and Homework
Fourteen th	2 hours	For the student to understand the meaning and importance of childhood.	Childhood: its definition, importance, and stages.	Lecture, discussion, problem solving	Homework
Fifteenth	An hour	For the student to	Physical growth and	Lecture,	Quizzes

	and a half	identify the most important changes in physical, mental and linguistic development	mental development And linguistics in childhood.	discussion, problem solving	and Homework
Sixteenth	2 hours	Mid-year examination			
Seventeenth	2 hours	For the student to identify the most important changes in social, emotional and family development.	Social and emotional development Moral development, family, school, peers, and media in childhood.	Lecture and discussion	Quizzes
Eighteenth	2 hours	For the student to understand the meaning and importance of adolescence.	Adolescence: its definition, importance and stages.	Lecture and discussion	Quizzes and Homework.
Nineteenth	2 hours	For the student to understand the role of adolescence and the family.	The adolescent, family and school.	Lecture and discussion	Quizzes
Twentieth	2 hours	A comprehensive review of developmental psychology vocabulary, discussions and a comprehensive exam		Lecture and discussion	Quizzes
Twenty-first	2 hours	For the student to understand the concept of professional ethics in education.	Introduction and the concept of professional education ethics.	Lecture and discussion	Quizzes
Twenty-second	2 hours	For the student to understand the meaning of the principles of ethics in the teaching profession.	Principles of ethics in the education profession.	Lecture, discussion, problem solving	Homework

Twenty-third	**2 hours**	**The student identifies the role of the teacher's ethical duties.**	**The teacher's ethical duties.**	**Lecture, discussion**	**Quizzes**
Twenty-fourth	**2 hours**	**The student identifies the role of the teacher's ethical duties.**	**The responsibilities of a successful teacher.**	**Lecture, discussion, problem solving**	**Homework**
Twenty-fifth	**2 hours**	**The student should understand the meaning of honesty and justice.**	**Honesty, fairness, and good treatment A for humility.**	**Lecture, discussion**	**Quizzes**
Twenty-sixth	**2 hours**	**That the student understands the meaning of reprehensible professional ethics.**	**Cheating, bribery and nepotism.**	**Lecture, discussion, problem solving.**	**Homework**
Twenty-seventh	**2 hours**	**That the student understands the meaning of reprehensible professional ethics.**	**Neglecting work and revealing secrets.**	**Lecture, discussion**	**Quizzes**
Twenty-eighth	**2 hours**	**For the student to understand the role of means of establishing professional ethics.**	**Means of consolidating professional ethics.**	**Lecture, discussion**	**Quizzes**
Twenty-ninth	**2 hours**	**Quizzes**			
Thirtieth	**2 hours**	**Final exams of the year**			

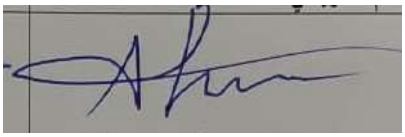
11. Course Evaluation and Marks

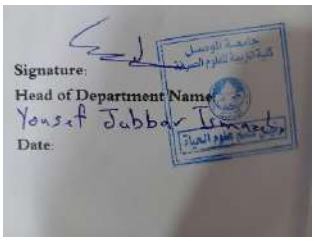
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	-Fundamentals of Educational Psychology. Mohiuddin and Abdul Rahman Adas (1983). - Methods of Learning and Thinking, Ismail Ibrahim Ali,

	and Wissam Tawfiq Al-Mashhadani (2014), Dar Qandil for Printing, Publishing and Distribution, Amman - Jordan. - Learning Theories, Imad Abdul Rahim Al-Zaghloul (2003), Dar Al-Shorouk Publishing and Distribution, Amman - Jordan. Al-Bashri, Qadriya Muhammad, 2011, Ethics of the Teaching Profession, 1st ed, Dar Al Khaleej Publishing and Distribution, Amman, Jordan.
Main references (sources)	-Fundamentals of Educational Psychology. Mohiuddin and Abdul Rahman Adas (1983).
Recommended books and references (scientific journals, reports…)	Educational psychology books .
Electronic References, Websites	
Percentage of Curriculum update	60%





Name and Signature

of Curriculum Administrator

Assist. Lec. Ahmed Adeeb Kanbar

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul, College: Education for pure science Department: Biology

- Course Name and stage:

Foundations of education – First stage

- Course Code:

EDBI25F109

- Semester / Year:

The first and second semesters of the 2024 – 2025 academic year

- Description Preparation Date:

01-09-2024

- Available Attendance Forms:

In-person and electronic

- Number of Credit Hours (Total) / Number of Units (Total)

60/4

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

Name: Rabeea Hazim Mohammed
Email: dr.rabeeahm@uomosul.edu.iq

- Course Objectives

Course Objectives	Familiarizing students with the fundamental foundations and principles upon which education is based, through the examination of various foundational areas, including historical, social, economic, and scientific contexts. Promoting the development of values in Arab and Islamic education. Teaching students research skills related to the history of education. Enabling students to understand the role of education in achieving sustainable development. Educating students on the roles of society, schools, and families in the educational process. Introducing students to both ancient and contemporary educational methods

- Teaching and Learning Strategies

Strategy	Managing lectures in a manner that emphasizes the importance of time management. Organizing group activities, with 10% of the grade allocated to these tasks. Assigning individual and group projects that require the use of library resources and the internet. Fostering a spirit of positive competition among students. Implementing reciprocal teaching methods

- Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge and Skills	Foundations of education	Electronic integrated in the lecture	a test
2	2	Knowledge and Skills	The meaning of education and goals of education	Electronic integrated the lecture	a test
3	2	Knowledge and Skills	Necessities and importance education	Electronic integrated the lecture	a test

4	2	Knowledge and Skills	Educational theories	Electronic integrated the lecture	a test
5	2	Knowledge and Skills	Educational theories	Electronic integrated the lecture	a test
6	2	Knowledge and Skills	Fields of education	Electronic integrated the lecture	a test
7	2	Knowledge and Skills	Historical basis	Electronic integrated the lecture	a test
8	2	Knowledge and Skills	Development of the foundations of education	Electronic integrated the lecture	a test
9	2	Knowledge and Skills	Education in primitive societies	Electronic integrated the lecture	a test
10	2	Knowledge and Skills	Chinese education	Electronic integrated the lecture	a test
11	2	Knowledge and Skills	Greek education	Electronic integrated the lecture	a test
12	2	Knowledge and Skills	Arab Islamic education	Electronic integrated the lecture	a test
13	2	Knowledge and Skills	Education in the pre-Islamic era	Electronic integrated the lecture	a test
14	2	Knowledge and Skills	Al-Ghazali	Electronic integrated the lecture	a test
15	2	Knowledge and Skills	Modern education	Electronic integrated the lecture	a test
16	2	Knowledge and Skills	Media of Arab educational thought/ Ibn Khaldoun	Electronic integrated the lecture	a test
17	2	Knowledge and Skills	Ibn Sina	Electronic integrated the lecture	a test
18	2	Knowledge and Skills	Jean-Jacques Rousseau	Electronic integrated the lecture	a test
19	2	Knowledge and Skills	John Dewey	Electronic integrated the lecture	a test
20	2	Knowledge and Skills	Social basis	Electronic integrated the lecture	a test
21	2	Knowledge and Skills	The relationship of education with society	Electronic integrated the lecture	a test
22	2	Knowledge and Skills	The relationship of education to the environment	Electronic integrated the lecture	a test
23	2	Knowledge and Skills	Congenital education	Electronic integrated the lecture	a test
24	2	Knowledge and Skills	Health education	Electronic integrated the lecture	a test
25	2	Knowledge and Skills	Development concept	Electronic integrated the lecture	a test
26	2	Knowledge and Skills	Education and development	Electronic integrated the lecture	a test
27	2	Knowledge and Skills	Family education	Electronic integrated the lecture	a test
28	2	Knowledge and Skills	Economic basis	Electronic integrated the lecture	a test
29	2	Knowledge and Skills	Economic return to education	Electronic integrated the lecture	a test
30	2	Knowledge and Skills	Development and planning	Electronic integrated the lecture	a test

- Course Evaluation

25% half the year
5% daily exams
5% activity (report or lecture)

5% semester exam 60% end-of-year exam	
• Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Principles of Education / Dr. Ahmed Ali Al-Haj Foundations of Education / Dr. Atiyah Hamouda
Main references (sources)	Lectures on the Fundamentals of Education, compiled b course instructor
Recommended books and references (scientific journals, reports...)	Principles of Education / Dr. Ahmed Ali Al-Haj Foundations of Education / Dr. Atiyah Hamouda
Electronic References, Websites	Google
Percentage of Curriculum update	10%

Name and Signature

of Curriculum Administrator

Dr. Rabeea Hazim Mohammed

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Sciences
Department or Branch: Biology Department

1. Course Name/stage: Laboratory safety / First class
2. Course Code: **EDBI25F112**
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2/2
7. Course administrator's name (mention all, if more than one name)
Name: Muthanna Jasim Mohammed Email: dr.muthanna.j.m@uomosul.edu.iq Name: Fawz abdul salm Al saffar Email: dr.fawz@uomosul.edu.iq
8. Course Objectives

Course Objectives	• **Knowing the basic principles of Laborat safety** • **Knowing the practical applications of** • Laboratory safety
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	1	Understand the basic principles	The laboratory, its definition, description, and types (the laboratory for life sciences and how to deal with equipment and biology).	Lecture	quizzes
Second	1	Understand the basic principles	Laboratory, its definition, description and typ (laboratories for other sciences relat to life sciences an how to deal with equipment and biology).	Lecture	quizzes
Third	1	Understand the basic principles	Glassware, types, how use it, a methods preserving chemicals in i	Lecture	quizzes
Fourth	1	Understand the basic principles	Types of chemicals (incendiary, flammabl carcinogenic, toxic...etc	experiment	Quiz, report , homework
Fifth	1	Understand the basic principles	How to use the devices correctly to maintain them and maintain the student's safety	Problem solving	Homework
Sixth	1	Understand the basic principles	How to use cleaning and sterilization materials and learn about them to avoid their danger	experiment	Quiz, report , homework
Seventh	1	Understand the basic principles	Identify laboratory and educational instructions and posters	Problem solving	Homework
Eighth	1	Understand the basic principles	Laboratory animals	experiment	Quiz, report , homework

			(hazardous and non-hazardous)		
Nineth	1	Understand the basic principles	How to deal with and care for laboratory animals and how to dispose of them after conducting experiments	Problem solving	Homework
Tenth	1	Understand the basic principles	How to bring plant samples from different regions and take caution when bringing them	experiment	Quiz, report homework
Eleventh	1	Understand the b principles	How to grow soi plants in t laboratory and ca for them	experiment	Quiz, report homework
Twelfth	1	Understand the basic principles	How to take bacterial and fungal samples from hospitals	Problem solving	Homework
Thirteen	1	Understand the basic principles	Pesticides, their types and how to use them	Lecture	Quiz, and homework
Fourteenth	1	Understand the basic principles	First aid when injured by pesticides	Problem solving	Homework
Fifteenth	1	Exam	first aid Its definiti description a requirements first aid Its definiti description a requirements		
Sixteenth	1	Understand the basic principles	Vital signs to be taken when starting first aid	lecture	Quiz, report , homework
Seventeenth	1	Understand the basic principles	Measure temperature, pressure, heartbeat and breathing	lecture	Quizzes
Eighteenth	1	Understand the basic principles	Disposal of waste from chemical experiments	Problem solving	Quiz, and homework
Nineteenth	1		Disposal of waste from biological	Lecture	Quizzes

			experiments		
Twentieth	1	Pedigree analysis	How to deal psychologically with an infected person in the laboratory and avoid panic.	Problem solving	homework
Twenty first	1	Understand the basic principles	First aid for fracture cases Types of fractures and how to deal with each type	Lecture	Quiz
Twenty second	1	Understand the basic principles	Burn first aid The types of burns and how to deal with each type	Problem solving	homework
Twenty thir	1	Understand the basic principles	First aid for drowning cases when collecting samples. How to perform artificial respiration	Lecture	Quiz
Twenty fourth	1	Understand the basic principles	First aid for cases of suffocation that occur in laboratories	Problem solving	homework
Twenty fifth	1	Understand the basic principles	First aid for poisoning cases (Poisoning from insect or snake bites, or even poisoning cases caused by certain types of plants)	lecture	Quiz
Twenty sixth	1	Understand the basic principles	First aid for electric shock cases	Problem solving	homework
Twenty seventh	1	Understand the basic principles	First aid for wounds	Lecture	Quiz
Twenty eighth	1	Understand the basic principles	First aid for cases of bleeding of both types (internal and external)	lecture	Quiz
Twenty nineth	1	Understand the basic principles	First aid for some diseases such as diabetes and high blood pressure	Lecture	Quiz
Thirtieth	1	Exam			

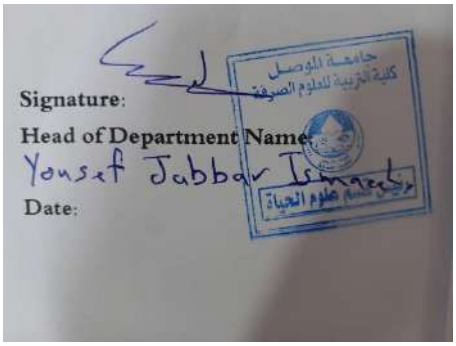
11. Course Evaluation

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, any)	There is no systematic book
Main references (sources)	Occupational safety in educational facilities / written by Hamza Al-Jabali / Jordan / first edition 2006
Recommended books and references (scientific journals, reports…)	The Guide to First Aid/First Edition 2019/The Arab Center for Writing and Translating Health Sciences ACMLS First Aid Simplified by Nigel Barraclough Safety and security in chemistry laboratories (Nusret Bayraktar) Glassware in science laboratories (Walid bin Al-Habashi Al-Numani, Yusra bint Nasser, and Jamila bint Khamis) First Aid (Tanta University/Faculty of Pharmacy/Unit crises and disasters) Encyclopedia of Occupational Health and Safety/ Volume 11, Chapter 38/ Translated by the Arab Labor Organization, Arab Institute for Occupational Health and Safety. Principles of biological analysis (Khamsawi Ahmed Al-Khamsawi
Electronic References, Websites	https://www.youtube.com/watch?v=FkQO8BNu https://www.youtube.com/watch?v=egb-I3q6bY
Percentage of curriculum update	20%



Prof. Dr. Muthanna J. Mohammed

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University :: Mosul College: Education for Pure Science Department: Biology

1. Course Name/ Stage: English/ First

2. Course Code: **EDBI25F111**

3. Semester / Year: 2025-2024

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms:

Lectures , Classroom

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

1/2

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

Name: Assistant Prof. Dr. Hasan Faisal Hussein Kahya
Email: dr.hasankahya@uomosul.edu.iq

8. Course Objectives

Course Objectives	• Providing students with the basic concepts of English language • Introducing the students to the basic elements of English language • Providing the students with English speaking and listening skills • Teaching the students of how to use English language in biology subject

9. Teaching and Learning Strategies

Strategy	Theoretical lecture , talk and discussions, problem solving , performing speaking and listening skills , reports and homework

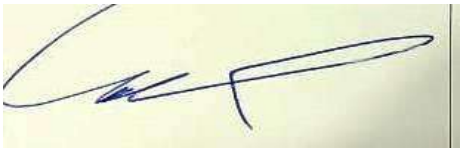
10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
first	2	Knowledge and skills	General review about English	Lecture	Quizzes
Second	2	Knowledge and skills	Present simple tense	Lecture	Quizzes
Third	2	Knowledge and skills	Present continuous	Lecture	Quizzes
Fourth	2	Knowledge and skills	Reading class: What is cloni	Lecture	Quizzes
Fifth	2	Knowledge and skills	Past simple tense	Lecture	Quizzes
Sixth	2	Knowledge and skills	Reading class: Microbial infections	Lecture	Quizzes
Seventh	2	Knowledge and skills	Paraphrase	Lecture	Quizzes
Eighth	2	Knowledge and skills	Past perfect tense	Lecture	Quizzes
Nineth	2	Knowledge and skills	Writing: The cell	Lecture	Quizzes
Tenth	2	Knowledge and skills	General English biological terms	Lecture	Quizzes

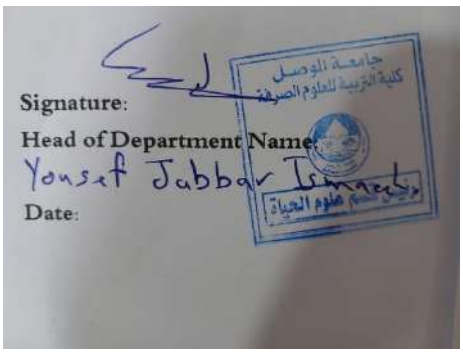
Eleventh	2	Knowledge and skills	Reading class: Ecology	Lecture	Quizzes
Twelfth	2	Knowledge and skills	Ecology/ discussion	Lecture	Quizzes
Thirteen	2	Knowledge and skills	Microscope	Lecture	Quizzes
Fourteenth	2	Knowledge and skills	Microorganisms	Lecture	Quizzes
Fifteenth	1	Knowledge and skills	Speaking	Lecture	Quizzes
Sixteenth	2	Knowledge and skills	Euglena	Lecture	Quizzes
Seventeenth	2	Knowledge and skills	The plant kingdom	Lecture	Quizzes
Eighteenth	2	Knowledge and skills	The animal kingdom	Lecture	Quizzes
Nineteenth	2	Knowledge and skills	The mammals	Lecture	Quizzes
Twentieth	2	Knowledge and skills	General review of the course	Lecture	Quizzes

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 Plus: Liz and John Soars
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	https://learnenglish.britishcouncil.org
Percentage of curriculum update	



Assistant Prof. Dr. Hasan Faisal Hussein Kahya



Course Description Form

University Mosul College of Education for Pure Science
Department: Biology

1. Course Name/ Stage: Computer Skills/ 1st stage

2. Course Code: EDBI24F107

3. Semester / Year:2024 -2025

4. Description Preparation Date: 1 / 9 / 2024

5. Available Attendance Forms: Laboratory , Classroom

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

3/2

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

Name: Asst.Prof.Dr. Mohammed Hazim Ameen Alkawaz
Email: mohammed.ameen@uomosul.edu.iq

8. Course Objectives

Course Objectives	• Understanding the type of the computer and its development over time. • Identifying the hardware and software components of the computer and the role played by each component. • Knowing how the data has been processed inside the computer. • Identify the internal and external storage media. • Knowing the World Wide Web and its types. • Identify computer viruses, their types, causes and the methods of prevention.

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture, talk and discussions, problem solving, performing practical experiments, reports, and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Computers	Introduction	lecture	Participation, attendance, assignments, quiz and exams
2	2	Stages of computer development	Computer Generations	lecture	Participation, attendance, assignments, quiz and exams
3	2	Introduction to the physical parts of the computer	Hardware	lecture	Participation, attendance, assignments, quiz and exams
4	2	The software parts of the computer	Software	lecture	Participation, attendance, assignments, quiz and exams
5	2	Data mechanism	Data Processing	lecture	Participation, attendance, assignments, quiz and exams
6	2	Introduction to operating systems	Operating Systems	lecture	Participation, attendance, assignments, quiz and exams
7	2	Types of computers	Computer Types	lecture	Participation, attendance, assignments, quiz and exams
8	2	Introduction to computer memory	Computer Memory	lecture	Participation, attendance, assignments, quiz and exams
9	2	Introduction to storage units	Computer Storage	lecture	Participation, attendance, assignments, quiz and exams

10	2	Introduction to the Internet	Internet	lecture	Participation, attendance, assignments, quiz and exams
11	2	Introduction to networks	Networks	lecture	Participation, attendance, assignments, quiz and exams
12	2	Types of networks	Networks Types	lecture	Participation, attendance, assignments, quiz and exams
13	2	Methods of connecting networks	Networks Topologies	lecture	Participation, attendance, assignments, quiz and exams
14	2	Viruses and how to prevention	Viruses and Antiviruses	lecture	Participation, attendance, assignments, quiz and exams
15	2	Digital tools in the classroom	The use of digital tools and their importance in improving the educational method	lecture	Participation, attendance, assignments, quiz and exams

11. Course Evaluation

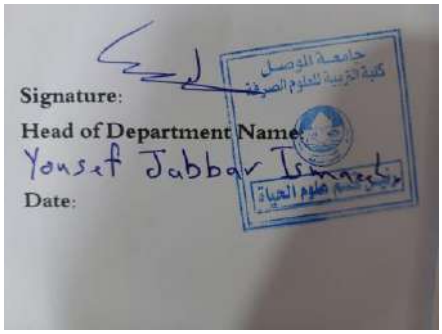
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Idachaba, F., Ike, D. U., & Hope, O. (2014). Future trends in fiber optics communication. In Proceedings of the World Congress on Engineering (Vol. 1, pp. 2-4). London, UK: WCE.
Main references (sources)	Wassim Youssef (2020) Computer Skills, Publications of the Syrian Vir University (SVU), Syrian Arab Republic, 2020
Recommended books and references (scientific journals, reports...)	1. Campbell-Kelly, M., Aspray, W. F., Yost, J. R., Tinn, H., & Díaz, G. C (2023). Computer: A history of the information machine. Routledge. 2. Li, Y., Chen, D., & Deng, X. (2024). The impact of digital educational games on student's motivation for learning: The mediating effect of learning engagement and the moderating effect of the digital environment. PloS one, 19(1), e0294350.
Electronic References, Websites	Le, H. (2024). CS 356-002: Introduction to Computer Networks

Asst.Prof.Dr. Mohammed Hazim Ameen Alkawaz

Curriculum administrator



Course Description Form

University of Mosul College of Education for Pure Science
Department of Chemistry

1. Course Name and Stage:
Analytical chemistry/ biochemistry
2. Course Code:
EDBI25F104
3. Semester / Year:
24−25
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Daily attendance at lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
One hour per section/four units
7. Course administrator's name (mention all, if more than one name) and Scientific title
Name: Ass. Prof. Mohamed Yahya Dhamra Email: Mohameddhamra@uomosul.edu.iq
8. Course Objectives

Subject Objectives	**• Learn about analytical chemistry** **• Learn about the two types of analytical chemistry** **• Learn about the classification of estimation metho** **• Learn about quantitative analytical chemistry** **• Learn about volumetric analysis** **• Learn about gravimetric analysis** **• Learn about classification by analytical method** **• Learn about the general principles of volume analysis, such as titration and indices** **• Learn about types of concentrations** **• Learn about methods for expressing concentratio** **• Learn how to solve problems in analytical chemis**

9. Teaching and Learning Strategies	
Strategy	A. Cognitive Objectives: After completing this course, the student will be able to:

1. Explain the concept of analytical chemistry.
2. Compare qualitative and quantitative analytical methods.
3. Describe the types of quantitative analysis.
4. Classify the types of quantitative analysis.
5. Describe volumetric analysis.
6. Describe the reactions used in volumetric analysis.
7. Identify the purpose of volumetric analysis.

B. Course Skill Objectives:

1. Apply the concept of analytical chemistry in the analytical process.
2. Apply the theoretical foundations of quantitative analysis.
3. Apply the principles of quantitative analysis.
4. Apply the types of volumetric analysis.
5. Evaluate the performance of various types of quantitative analysis.
6. Identify the requirements for various types of analysis.
7. Apply calculations in quantitative analysis.

C. Affective and Value Objectives:

1. Develop scientific attitudes.
2. Develop scientific motivation.
3. Develop scientific thinking.
4- Developing creative thinking
5- Thinking skills.

10. Course Structure

Week	Hours	Unit or subject name	Required Learning Outcomes	Learning method	Evaluation method
The first	hour	Definition of analytical chemistr	Learn about analytical chemistry	Lecture	Daily Exam
Second	hour	Chemistry classification method	Identify the classification of analytical chemist	Lecture	Participation in the lecture
Third	hour	Volumetric analysis and its type	Recognize volumetric analysis	Lecture	Participation in the le
Fourth	hour	Standard Material	Familiarization with standard materials	Lecture	Participation
V	hour	Calculations in volumetric analy	Understand direct and indirect calculations	Lecture	Daily Exam
Sixth	hour	Calculate concentration directly	Learning about calculating concentrations	Lecture	Writing a report on material
Seventh	hour	Calculate concentration indirect	Learning about calculating concentrations	Lecture	Daily Exam
Eighth	hour	Titrations and their types	Recognize the process of Titration	Lecture	Daily Exam
Ninth	hour	Determination of acids and base	Recognize acid Titration and bases	Lecture	Daily Exam
X	hour	Solved problems in volumetric analy	Understand questions and solutions to problems	Lecture	Question discussion
Eleventh	hour	Sequel	Understand questions and solutions to problems	Lecture	Solve external questions
Twelfth	hour	Indicators	Identify Indicators	Lecture	Discussion participation
Thirteenth	hour	Classification of Indicators	Split directories	Lecture	Discussion
Fourteenth	hour	pH	identify the pH	Lecture	Discussion participation
Fifteenth	hour	pH	recognize the solution of problems of acid pH	Lecture	Daily Exam
Sixteenth	Two hours	Semester exam	Semester exam	Semester exa	Semester Exam

11. Course Evaluation and Marks	
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)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Chemistry in Quantitative Language_ Fundamentals of General Chemistry Calculations-Oxford University Press(2021)
Electronic References, Websites	
Percentage of Curriculum update	

Name and Signature

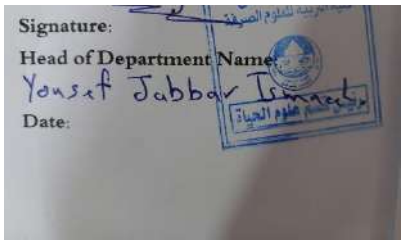
of Curriculum Administrator

Assistance professor

Mohamed yahya Dhamra

Name and Signature

of Department or Branch Head



Course Description Form

University: Mosul College: College of Education for Pure Science Department: Biology

1. Course Name: Ecology and Environmental
2. Course Code: EDBI25F301
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
Prof. Dr. Hussein Saber Mohammed Ali dr.husseinbio76@uomosul.edu.iq
7. Course administrator's name (mention all, if more than one name)
8. Course Objectives

Course Objectives	• **Knowing the basic principles of Ecology** • **Knowing the practical applications of Ecology**
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Knowledge and skill	Basics of ecology	Lecture	quizzes
Second	2	Knowledge and skill	Environment compone	Lecture	quizzes

Third	2	Knowledge and skill	Biotic Components	Lecture	quizzes
Fourth	2	Knowledge and skill	Abiotic Components	experiment	Quiz, report , homework
Fifth	2	Knowledge and skill	Producers	Problem solving	Homework
Sixth	2	Knowledge and skill	consumers	experiment	Quiz, report , homework
Seventh	2	Knowledge and skill	Decomposer	Problem solving	Homework
Eighth	2	Knowledge and skill	Food Chin	experiment	Quiz, report , homework
Nineth	2	Knowledge and skill	Web Chin	Problem solving	Homework
Tenth	2	Knowledge and skill	Energy pyramid	experimen	Quiz, report , homework
Eleventh	2	Knowledge and skill	Factors affecting livir organisms	experimen	Quiz, report , homework
Twelfth	2	Knowledge and skill	Ecological succession	Problem solving	Homework
Thirteen	2	Knowledge and skill	Productivity	Lecture	Quiz, and homework
Fourteenth	2	Knowledge and skill	Biogeochemical Cycles	Problem solving	Homework
Fifteenth	1	Knowledge and s	Earth Biomes		
Sixteenth	2	Knowledge and skill	Community environment	lecture	Quiz, report , homework
Seventeenth	2	Knowledge and skill	Energy flow in the environment	lecture	Quizzes
Eighteenth	2	Knowledge and skill	Natural hazards	Problem solving	Quiz, and homework
Nineteenth	2	Knowledge and skill	Environmental pollution	Lecture	Quizzes
Twentieth	2	Knowledge and skill	Soil pollution	Problem solving	homework
Twenty first	2	Knowledge and skill	Water pollution	Lecture	Quiz
Twenty second	2	Knowledge and skill	Air pollution	Problem solving	homework
Twenty third	2	Knowledge and skill	Depletion of natural resources	Lecture	Quiz
Twenty fourth	2	Knowledge and skill	Factors affecting living organisms	Problem solving	homework
Twenty fifth	2	Knowledge and skill	Ecological succession	lecture	Quiz
Twenty sixth	2	Knowledge and skill	Population group	Problem solving	homework
Twenty seventh	2	Knowledge and skill	Oil pollution	Lecture	Quiz

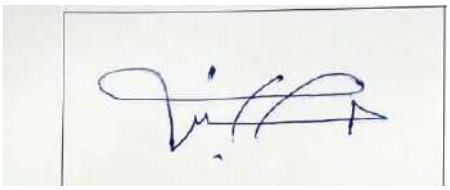
Twenty eighth	2	Knowledge and skill	Productivity	lecture	Quiz
Twenty nineth	2	Knowledge and skill	Density and frequency	Lecture	Quiz
Thirtieth	1	Exam			

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)	
Main references (sources)	Environmental Pollution, Ayed Radi Khanfar, 2009, Dar Al-Yazourdi for Publishing and Printing. Environmental Pollution, Muthanna Abdel-Razzaq Al-Omar, 2010, Dar Wael for Publishing and Distribution. Introduction to Environmental Science, Ali Salem Al-Shawara, 2012, Dar Al-Masirah for Printing Publishing and Distribution.
Recommended books and references (scientific journals, reports…)	Freshwater Biology, Hamid Salman Khamis and Muhammad Hamid Ayoub, 1989, National Library for Printing and Publishing.
Electronic References, Websites	
Percentage of curriculum update	20%



Prof. Dr. Hussein Saber Mohammed Ali

Name and Signature of Curriculum administrator

Name and Signature of Department head

Course Description Form

University: Mosul College: Education for Pure Science
Department or Branch: Biology

1. Course Name:
Practical Environment and pollution
2. Course Code:
EDB125F301
3. Semester / Year:
2024−2025
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2/6
7. Course administrator's name (mention all, if more than one name)
Name: Azhar Yuonis Reda Emial : azhar81@uomosul.edu.iq Reem Adnan abd-Alrazaq Waffaa Esam abd-Alqader Suzan Othman Omer Yasser Ajil Al- Jalao
8. Course Objectives

Course Objectives	**• Learn the basic details of practical ecology and pollution** **• Identify misconduct and pollution**
9. Teaching and Learning Strategies	
Strategy	Theoretical and practical lecture, dialogue and discussions, conducting practical experiments, reports and daily assignments

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

first	2	Knowledge and skill	An introductory introduction to the environment and pollution	Lecture	quizzes
Second	2	Knowledge and skill	Environmental devices part One	Lecture	quizzes
Third	2	Knowledge and skill	Environmental devices part tow	Lecture	quizzes
Fourth	2	Knowledge and skill	Acid function	experience	Quiz, report , homework
Fifth	2	Knowledge and skill	The Soil	experience	Homework
Sixth	2	Knowledge and skill	Soil moisture content	experiment	Quiz, report , homework
Seventh	2	Knowledge and skill	Field capacity	experiment	Homework
Eighth	2	Knowledge and skill	Determination of calcium and magnesium in soil and water	experiment	Quiz, report , homework
Nineth	2	Knowledge and skill	Determination of chloride in water	Experiment	Homework
Tenth	2	Knowledge and skill	Total hardnees	Experiment	Quiz, report homework
Eleventh	2	Knowledge and skill	Total Alkalinity	Experiment	Quiz, report homework
Twelfth	2	Practical applications	Estimation of dissolved oxygen in water	experiment	Homework
Thirteen	2	Knowledge and skill	Productivity	Lecture	Quiz, and homework
Fourteenth	2	Knowledge and skill	Evidence of bacterial contamination in water part One	Experiment	Homework
Fifteenth	1	Exam			
Sixteenth	2	Knowledge and skill	Evidence of bacterial contamination in water part tow	experiment	Quiz, report , homework
Seventeenth	2	Knowledge and skill	Density and frequency	Lecture	Quizzes

Eighteenth	2	Knowledge and skill	Population groups part One	Lecture	Quiz, and homework
Nineteenth	2	Knowledge and skill	Population groups part tow	Lecture	Quizzes
Twentieth	2	Knowledge and skill	Oil pollution	Lecture	homework
Twenty first	2	Knowledge and skill	Air pollution	Lecture	Quiz
Twenty second	2	Knowledge and skill	Water pollution	Lecture	homework
Twenty third	2	Knowledge and skill	Food chains	Lecture	Quiz
Twenty fourth	2	Knowledge and skill	Food webs	Lecture	homework
Twenty fifth	2	Knowledge and skill	Bioaccumulation of heavy metals	Lecture	Quiz
Twenty sixth	2	Knowledge and skill	Fertilizer contamination	Lecture	homework
Twenty seventh	2	Knowledge and skill	Pesticide contamination	Lecture	Quiz
Twenty eighth	2	Knowledge and skill	The water cycle in nature	Lecture	Quiz
Twenty nineth	2	Knowledge and skill	Rain pollution Sour	Lecture	Quiz
Thirtieth	1	Exam			

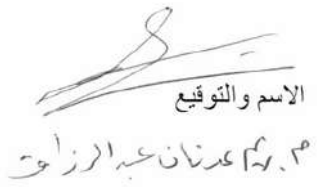
11. Course Evaluation

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)	The methodological book in Arabic, Practical Environmental Engineering, 1990, Environmental Science, Hussein Al-Saadi 2017 Stand Method for Examination of water and ● waste water, 1998
Main references (sources)	Soil and water pollution and treatment, 2016 Dr. Hala Marwan Sheikhani, Dr. Muhammad Samir Al-Hafez, Dr. Iyad Saray Al-Din Freshwater Biology / Written by: Peter S. Maitland Translated by: Dr. Hamid Salman Khamis and Mr. Muhammad Hamid Ayoub

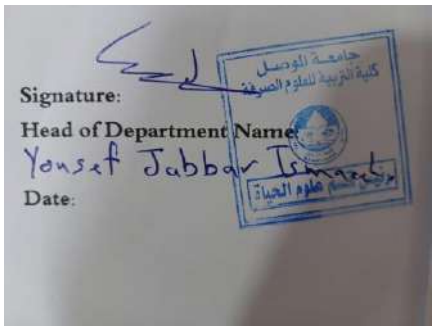
Recommended books and references (scientific journals, reports…)	Environment and development magazine https://www.env-news.com/in-depth/reports
Percentage of Curriculum update	50%



Lec. Reem Adnan Abdul-razzaq

Name and Signature

of Curriculum Administrator



Name and Signature

of Department head

Course Description Form

University of Mosul College of Education for pure sciences Department of Biology

1. Course Name and Stage: Theoretical Entomology/ Third stage

2. Course Code: EDBI25F309

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

4/6

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

Name: Assistant Prof. Dr. Ibrahim khaleel Ibrahim
Email: dr.ibrahimkhaleel@uomosul.edu.iq

8. Course Objectives

Course Objectives	● **Knowing the basic principles of Entomology** ● **Knowing the practical applications of Entomology**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture, talk and discussions, problem solving, performing practical experiments, reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Knowing the position of insecta class from animalia kingdom and the importance of insects	position of insecta class from animalia kingdom, the importance of insects	Lecture	Quizzes
Second	2	Knowing the external structure of insects	Body wall, Head, Thor and Abdomen	Lecture	Quizzes
Third	2	Knowing the internal structure of insects	Internal structure of insects	Lecture	quizzes

Fourth	2	Understanding the functions of digestive, respiratory and nervous systems	Digestive, Respiratory and Nervous systems	Lecture	Quiz, report , homework
Fifth	2	Understanding the functions of sense organs	Sense organs	Lecture	Homework
Sixth	2	Understanding the functions of muscular and circulatory systems	Muscular and Circulatory systems	Lecture	Quiz, report , homework
Seventh	2	Understanding the functions of excretory organs	Excretory organs	Lecture	Homework
Eighth	2	Understanding the oogenesis and spermatogenesis	Reproductive system	Lecture	Quiz, report , homework
Ninth	2	Understanding the mouling in insects	Reproduction, Growth and Development	Lecture	Homework
Tenth	2	Understanding the basic principles of Insect communities evolution	Insect communities and their evolution	Lecture	Quiz, report homework
Eleventh	2	Understanding the basic principles of taxonomic keys	Classification of insects	Lecture	Quiz, report homework
Twelfth	2	Understanding the position of insecta class from animalia kingdom and general characteristics of insecta class	Classification of insects	lecture	Homework
Thirteen	2	Understanding the general characteristics of apterygota subclass	Subclass of Apterygota	lecture	Quiz
Fourteenth	2	Understanding the general characteristics of orders: thysanura and collemola	Orders: Thysanura and Collemola	Lecture	Quiz
Fifteenth	1	Exam			
Sixteenth	2	Understanding the general characteristics of orders: protura and diplura	Orders: Protura and Diplura	Lecture	Quiz

Seventeenth	2	Understanding the general characteristics of pterygota subclass	Subclass of Pterygota	lecture	Quiz, and homework
Eighteenth	2	Understanding the general characteristics of exopterygota division	Division of Exopterygota	Lecture	Quiz
Nineteenth	2	Identifying the exopterygota division	Orders of Exopterygota Division	Lecture	homework
Twentieth	2	Understanding the general characteristics of endopterygota division	Division of Endopterygota	Lecture	Quiz
Twenty first	2	identifying the endopterygota division	Orders of Endopterygota Division	Lecture	homework
Twenty second	2	Understanding the general characteristics of orders: ephemeroptera, odonata and plecoptera	Orders: Ephemeroptera, Odonata and plecoptera	Lecture	Quiz
Twenty third	2	Understanding the general characteristics of orders: orthoptera, phasmida and dermaptera	Orders: Orthoptera, Phasmida and Dermaptera	Lecture	homework
Twenty fourth	2	Understanding the general characteristics of orders: embioptera, dictyoptera and isoptera	Orders: Embioptera, Dictyoptera and Isoptera	lecture	Quiz
Twenty fifth	2	Understanding the general characteristics of orders: siphunculata, hemiptera and thysanoptera	Orders: Siphunculata, Hemiptera and Thysanoptera	lecture	homework

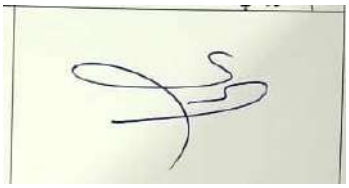
Twenty sixth	2	Understanding the general characteristics of orders: neuroptera and mecoptera	Orders: Neuroptera and Mecoptera	lecture	Quiz
Twenty seventh	2	Understanding the general characteristics of orders: lepidoptera and tricoptera	Orders: Lepidoptera and Tricoptera	lecture	Quiz
Twenty eighth	2	Understanding the general characteristics of orders: diptera and siphonaptera	Orders: Diptera and Siphonaptera	lecture	Quiz
Twenty ninth	2	Understanding the general characteristics of orders: hymenoptera, coleoptera and stoepsiptera	Orders: Hymenoptera, Coleoptera and Stoepsiptera	Lecture	Quiz
Thirtieth	1	Exam			

11. Course Evaluation and Marks

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

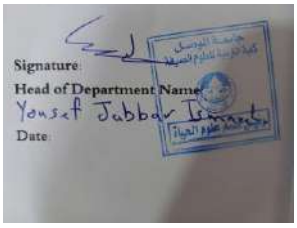
Required textbooks (curricular books, if any)	
Main references (sources)	Gillott, C. (2005). Entomology. Springer Science & Business Media.
Recommended books and references (scientific journals, reports…)	Romoser, W. S. (1981). The science of entomology (No. Ed. 2). Macmillan Publishing Co. Inc..
Electronic References, Websites	https://entomology.edu.au/learn
Percentage of Curriculum update	20%



Assistant Prof. Dr. Ibrahim khaleel Ibrahim

Name and Signature

of Curriculum Administrator



Name and Signature

of Department or Branch Head

Course Description Form

University of Mosul College of Education for pure sciences Department of Biology

1. Course Name and Stage: Practical Entomology/ Third stage

2. Course Code: EDBI25F309

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

4/6

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

Name: Assistant Prof. Dr. Ibrahim khaleel Ibrahim
Email: dr.ibrahimkhaleel@uomosul.edu.iq

Name: Assistant Prof. Dr. Safaa Mohammed Mahmood
Email: mohamedsafaa213@uomosul.edu.iq

Name: Lecturer Dr. Shaymaa Mohammed Hisham
Email: sshaymamhisham@uomosul.edu.iq

Name: Assistant Lecturer. Ahmed Nabeel Saeed
Email: ahmed.nabeel@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of Entomology** • **Knowing the practical applications of Entomology**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First	2	Choosing the appropriate methods and tools of insects collecting	Methods of insects collecting	Lecture	Quizzes
Second	2	Knowing the materials used to kill of insects	Insects killing	Lecture	Quizzes
Third	2	Knowing the methods and tools used to preserve of insects	Insects preservation	Lecture	Quizzes
Fourth	2	Understanding the external structure and characteristics of insects	External characteristics of insects	experiment	Quiz, report , homework
Fifth	2	Practical application for Knowing the positions, structure and appendages of insect head	Positions, structure and appendages of insect head	Lecture	Homework
Sixth	2	Understanding the mechanism of insect mouthparts moving and structure of insect mouthparts	Insect mouthparts and insect mouthpart modifications	experiment	Quiz, report , homework
Seventh	2	Practical application for identifying the antenna parts and its modifications	Insect antennae and types of insect antennae	Lecture	Homework
Eighth	2	Understanding the components of thoracic segments	The thorax	experiment	Quiz, report , homework
Ninth	2	Practical application for identifying the parts and types of insect legs	Appendages of insect thorax, insect legs and insect legs modifications	Lecture	Homework
Tenth	2	Understanding the structure, modification and coupling of wing	types of insect wings and insect wing coupling	experiment	Quiz, report homework
Eleventh	2	Understanding the components abdominal regions and identifying the abdominal appendages of insects	The abdomen and abdominal appendages of insects	experiment	Quiz, report homework

Twelfth	2	Practical application for identifying a types of insect metamorphosis	Insect metamorphosis	Lecture	Homework
Thirteen	2	Understanding a types and shapes of immature stages	Immature stages	Lecture	Quiz, and homework
Fourteenth	2	Practical applications for identifying a types of eggs, larvae and pupae of insects	Eggs, larvae and pupae of insects	Lecture	Homework
Fifteenth	1	Exam			
Sixteenth	2	Understanding the position of insecta class from animalia kingdom and general characteristics of insecta class	Classification of insects	lecture	Quiz, report , homework
Seventeenth	2	Understanding the general characteristics of apterygota subclass	Subclass of Apterygota	lecture	Quiz
Eighteenth	2	Understanding the general characteristics of pterygota subclass	Subclass of Pterygota	lecture	Quiz, and homework
Nineteenth	2	Understanding the general characteristics of exopterygota division	Division of Exopterygota	Lecture	Quiz
Twentieth	2	Identifying the exopterygota division	Orders of Exopterygota Division	Lecture	Homework
Twenty first	2	Understanding the general characteristics of endopterygota division	Division of Endopterygota	Lecture	Quiz
Twenty second	2	Practical application for identifying the endopterygota division	Orders of Endopterygota Division	Lecture	homework

Twenty third	2	Understanding the general characteristics of orders: ephemeroptera, odonata and plecoptera	Orders: Ephemeroptera, Odonata and plecoptera	Lecture	Quiz
Twenty fourth	2	Practical applications for identifying the orders: orthoptera, phasmida and dermaptera	Orders: Orthoptera, Phasmida and Dermaptera	Lecture	Homework
Twenty fifth	2	Understanding the general characteristics of orders: embioptera, dictyoptera and isoptera	Orders: Embioptera, Dictyoptera and Isoptera	lecture	Quiz
Twenty sixth	2	Practical applications for identifying the orders: siphunculata, hemiptera and thysanoptera	Orders: Siphunculata, Hemiptera and Thysanoptera	lecture	Homework
Twenty seventh	2	Understanding the general characteristics of orders: neuroptera and mecoptera	Orders: Neuroptera and Mecoptera	lecture	Quiz
Twenty eighth	2	Practical applications for identifying the orders: lepidoptera, tricoptera and diptera	Orders: Lepidoptera, Tricoptera and Diptera	lecture	Quiz
Twenty ninth	2	Understanding the general characteristics of orders: siphonaptera, hymenoptera, coleoptera and stoepsiptera	Orders: Siphonaptera, Hymenoptera, Coleoptera and Stoepsiptera	Lecture	Quiz
Thirtieth	1	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	
Main references (sources)	Gillott, C. (2005). Entomology. Springer Science & Business Media.
Recommended books and references (scientific journals, reports…)	Romoser, W. S. (1981). The science of entomology (No. Ed. 2). Macmillan Publishing Co. Inc..
Electronic References, Websites	https://entomology.edu.au/learn
Percentage of Curriculum update	20%

Assistant Prof. Dr. Safaa Mohammed Mahmood
Name and Signature of Curriculum Administrator

Name and Signature of department head

Course Description Form

University: Mosul College: College of Education for Pure Science
Department or Branch: Biology

1. Course Name and Stage: Genetics/ Third Class

2. Course Code: EDBI25F304

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Attendance- Classroom on internet

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

2 hrs/ 6 Units

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

Name: Assistant Prof. Dr. Raad Hassani sultan Email: dr.raadsultan@uomosul.edu.iq
Assistant Prof. Dr. Ghazwan Kasim Hasan Email: dr.gghazwan@uomosul.edu.iq

8. Course Objectives

Subject Objectives	**Identify the principles of genetics Identify of Mendelian genetics and molecular genetics**

9. Teaching and Learning Strategies

Strategy	Lectures /Discussion/ Reports/ Written homework.

10. Course Structure

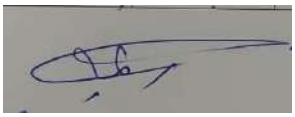
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Identify of low segregation or monohybrid cross	Low of segregation or monohybrid cross	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material

2end	2	Identify of independent assortment or dihybrid cross	Low of independent assortment or dihybrid cross	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
3rd	2	Identify of types dominance and Gene interaction	Types of dominance and gene interaction	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
4th	2	Identify of DNA structure and DNA replication	DNA structure and DNA replication	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
5th	2	Identify of Quantitative genetics and multigene	Quantitative genetics and multigene	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
6th	2	Identify RNA transcription and Genetic code	RNA transcription and genetic code	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
7th	2	Identify of linkage and crossing over	Linkage and crossing over	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
8th	2	Identify of reverse transcriptase	Reverse transcriptase	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
9th	2	Identify of crossing over and factors affecting on crossing over	Crossing over and factors affecting on crossing over	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
10th	2	Identify of gene mutation and chromosome aberration	Gene mutation and chromosome aberration	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material

11th	2	Identify of heredity of sex linkage	Heredity of sex linkage	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
12th	2	Identify of chromosomal variations in quality and numerical	Chromosomal variations in quality and numerical	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
13th	2	Identify of tribal inheritance and Hardy-Weinberg low	Tribal inheritance and Hardy-Weinberg low	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
14th	2	Identify cytoplasmic inheritance	Cytoplasmic inheritance	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
		Mid-Year Exam			
15th	2	Identifying of genetics and evolution	Genetics and evolution	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
16th	2	Identify of operon systems/ lac operon	Operon systems/ lac operon	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
17th	2	Identify genetic engineering	Genetic engineering	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
18th	2	Identify of cloning vectors	Cloning vectors	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
19th	2	Identify of plasmids	Plasmids	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
20th	2	Identify of restriction enzymes	Restriction enzymes	Lecture on blackboard and video	Daily exam/ Reaction of students

				show	with scientific material
21th	2	Identify of application of genetic engineering	Applications of Genetic engineering	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
22th	2	Identify of insulin hormone	Insulin hormone	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
23th	2	Identify of genetically modified foods	Genetically modified foods	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
24th	2	Identify of engineered genes	Engineered genes	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
25th	2	Identify of Polymerase chain reaction	Polymerase chain reaction	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
26th	2	Identify of Gel electrophoreses	Gel electrophoreses	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
27th	2	Identify of physical mutation agents	Physical mutation agents	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
28th	2	Identify of chemical mutation agents	Chemical mutation agents	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
29th	2	Identify of DNA repair	DNA repair	Lecture on blackboard and video show	Daily exam/ Reaction of students with scientific material
		Final Year Exam			

11. Course Evaluation and Marks	
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)	Genetics, 1989 Written by Saad Taj Din and Abed Al-Nabi Hadi El-Essa, Published by Dar Eben Al-Atheer for Typing and Publishing.
Main references (sources)	Tamarin, R. H. 1996. Principles of Genetics, 5th Edition, Wmc Brov Publishers, U.S.A.
Recommended books and references (scientific journals, reports…)	Snustad D. P. and Simmons, M. J. 2000. Principles of Genetics, 6th Edition, John Wiely and Sons.
Electronic References, Websites	https://learn.genetics.utah.edu/
Percentage of Curriculum update	20%



Name and Signature

Assistant Prof. Dr. Raad Hassani Sultan

Name and Signature

Assistant Prof. Dr. Ghazwan Qasim

Name and Signature

of Department or Branch Head

Prof. Dr. Yousif Jabbar Ismaeel

Course Description Form

University: Mosul College: Education for Pure Science
Department or Branch: Biology Department

1. Course Name/ stage: Practical Genetics/ third class
2. Course Code: **EDBI25F304**
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
4/6
7. Course administrator's name (mention all, if more than one name)
Name: Assist. Prof. Dr. Raad Hassani Sultan Email: dr.raadsultan@uomosul.edu.iq Assist Prof Dr. Ghazwan Qasim Hasan Assist. Prof. Omar Abdulaziz Ahmed Dr. Zena Wajeh Hameed Dr. Yousra Abdel-Razzaq Abdulla Lec. Mohammed Zaghlool Saeed
8. Course Objectives

Course Objectives	• **Knowing the basic principles of Genetics** • **Knowing the practical applications of Genetics**
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments ,

	reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Choosing an appropriate organism for study	Suitable organisms for genetic studies	Lecture	quizzes
Second	2	Knowing the organism	Fruit fly	Lecture	quizzes
Third	2	Knowing the organism	Corn	Lecture	quizzes
Fourth	2	Understanding basic principles	Mendel 1st law	experiment	Quiz, report , homework
Fifth	2	Practical application of law	Problem solving	Problem solving	Homework
Sixth	2	Understanding basic principles	Mendel 2nd law	experiment	Quiz, report , homework
Seventh	2	Practical application of law	Problem solving	Problem solving	Homework
Eighth	2	Understanding basic principles	Test cross	experiment	Quiz, report , homework
Nineth	2	Practical application of law	Problem solving	Problem solving	Homework
Tenth	2	Understanding the basic principles of gene interaction	Complementary genes	experiment	Quiz, report homework
Eleventh	2	Understanding the ba principles of ge interaction	Complementary genes	experiment	Quiz, report homework
Twelfth	2	Practical applications	Problem solving	Problem solving	Homework
Thirteen	2	Understanding basic principles and applications	Quantitative genetics	Lecture	Quiz, and homework
Fourteenth	2	Practical applications	Problem solving	Problem solving	Homework
Fifteenth	1	Exam			
Sixteenth	2	Understanding the basic principles	Sex determination in organisms	lecture	Quiz, report , homework
Seventeenth	2	Understanding the basic principles and crosses	Sex-linked inheritance	lecture	Quizzes
Eighteenth	2	Understanding problem solving and crosses	Problem solving	Problem solving	Quiz, and homework

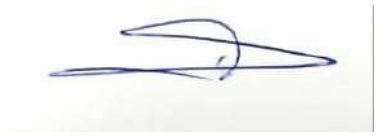
Nineteenth	2	Understanding pedigree analysis in genetic diseases	Pedigree analysis	Lecture	Quizzes
Twentieth	2	Pedigree analysis	Problem solving	Problem solving	homework
Twenty first	2	Understanding modifications of 1st and 2nd Mendel law	Co-dominance and multiple alleles	Lecture	Quiz
Twenty second	2	Practical applications	Problem solving	Problem solving	homework
Twenty third	2	Understanding linkage and cross-over	Linkage and cross-over	Lecture	Quiz
Twenty fourth	2	Practical applications	Problem solving	Problem solving	homework
Twenty fifth	2	Understanding population genetics	population genetics	lecture	Quiz
Twenty sixth	2	Practical applications	Problem solving	Problem solving	homework
Twenty seventh	2	Understanding the principles of horizontal gene transfer	Conjugation	Lecture	Quiz
Twenty eighth	2	Practical application of Molecular genetics	DNA sequencing	lecture	Quiz
Twenty nineth	2	Understanding cytoplasmic inheritance	cytoplasmic inheritance	Lecture	Quiz
Thirtieth	1	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)	Genetics. 1989. Saad J. Taj-Aldeen and Abdu lnaaby H. Al-Essa .Ibn alathir Publication house
Main references (sources)	Tamarin, R.H. 1996. Principles of Genetics, 5th ed. Wmc Brown publishers. USA.
Recommended books and references (scientific journals, reports…)	Snustad D.P. and Simmons, M.J.2000. Principles of Genetics, 6th edition,. John Wiely and Sons
Electronic References, Websites	https://learn.genetics.utah.edu/
Percentage of curriculum update	20%



Dr. Omar Abdulaziz Ahmed

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Science Department: Biology

1. Course Name: Practical comparative anatomy of chordates/ third stage

2. Course Code: **EDBI25F303**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

2/6

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

Name: Prof. Dr. Ameer M. Taha Email: amhamdany@uomosul.edu.iq
Dr. Mohammed Y. Ahmed dr.mohammedyahmed@uomosul.edu.iq
Dr. Amal Abdulilah younis amal.biology@uomosul.edu.iq
Mr. Bashar R. Karem Bashar.karem@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of Comparative Anatomy** • **Knowing the classification of Chordates and Vertebrates**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Learn about the basic concepts of comparative anatomy	Fundamentals of chordate and comparative anatomy	Lecture	Quizzes, dissection mod slideshows

Second	2	Identify chordates	Protochordates	Lecture	Quizzes, dissection mode slideshows
Third	2	Learn about the classification of vertebrates	Classification aquatic vertebrat	Lecture	Quizzes, dissection mode slideshows
Fourth	2	Learn about the classification of vertebrates	Classification of Reptiles and birds	experiment	Quizzes, dissection models, slideshows
Fifth	2	Learn about the classification of vertebrates	Classification of Mammals	Problem solving	Quizzes, dissection models, slideshows
Sixth	2	Learn about the comparative anatomy of the skin	Skin in the fishes and amphibians	experiment	Quizzes, dissection models, slideshows
Seventh	2	Learn about the comparative anatomy of the skin	Skin in the Reptiles and birds	Problem solving	Quizzes, dissection models, slideshows
Eighth	2	Learn about the comparative anatomy of the skin	Skin in the Mammals	experiment	Quizzes, dissection models, slideshows
Nineth	2	Learn about the comparative anatomy of the skeletal system	Skull in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Tenth	2	Learn about the comparative anatomy of the skeletal system	vertebral column in vertebrates	experiment	Quizzes, dissection mod slideshows
Eleventh	2	Learn about comparative anato of the skeletal syst	The upper limbs vertebrates	experiment	Quizzes, dissection mod slideshows
Twelfth	2	Learn about the comparative anatomy of the skeletal system	Lower limbs in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Thirteen	2	Learn about the comparative anatomy of the muscular system	Muscular system in fish and amphipods	Lecture	Quizzes, dissection models, slideshows
Fourteenth	2	Learn about the comparative anatomy of the muscular system	The muscular system in amniotes	Problem solving	Quizzes, dissection models, slideshows
Fifteenth	2	Learn al the compara anatomy the digestive system	Comparativ anatomy of t mouth in vertebrate	lecture	Quizzes, dissect models, slidesho
Sixteenth	2	Learn about the comparative anatomy of the digestive system	Comparative anatomy of the esophagus and stomach vertebrates	lecture	Quizzes, dissection models, slideshows

Seventeenth	2	Learn about the comparative anatomy of the digestive system	Comparative anatomy of the intestine in vertebrates	lecture	Quizzes, dissection mode slideshows
Eighteenth	2	Learn about the comparative anatomy of the digestive system	Comparative anatomy of the digestion glands vertebrates	Problem solving	Quizzes, dissection models, slideshows
Nineteenth	2	Learn about the comparative anatomy of the respiratory system	Comparative anatomy of the gills vertebrates	Lecture	Quizzes, dissection models, slideshows
Twentieth	2	Learn about the comparative anatomy of the respiratory system	Comparative anatomy of the lung in amphibians and reptiles	Problem solving	Quizzes, dissection models, slideshows
Twenty first	2	Learn about the comparative anatomy of the respiratory system	Comparative anatomy of the lung in birds and mammals	Lecture	Quizzes, dissection models, slideshows
Twenty second	2	Learn about the comparative anatomy of the Circulatory system	Comparative anatomy of the heart in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Twenty third	2	Learn about the comparative anatomy of the Circulatory system	Comparative anatomy of the arteries in vertebrates	Lecture	Quizzes, dissection models, slideshows
Twenty fourth	2	Learn about the comparative anatomy of the Circulatory system	Comparative anatomy of the venues in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Twenty fifth	2	Learn about the comparative anatomy of the urinary system	Comparative anatomy of the urinary system in lower vertebrates	lecture	Quizzes, dissection models, slideshows
Twenty sixth	2	Learn about the comparative anatomy of the urinary system	Comparative anatomy of the urinary system in upper vertebrates	Problem solving	Quizzes, dissection models, slideshows
Twenty seventh	2	Learn about the comparative anatomy of the congenital system	Comparative anatomy of the congenital system in lower vertebrates	Lecture	Quizzes, dissection models, slideshows
Twenty eighth	2	Learn about the comparative anatomy of the congenital system	Comparative anatomy of the congenital system in upper vertebrates	lecture	Quizzes, dissection models, slideshows

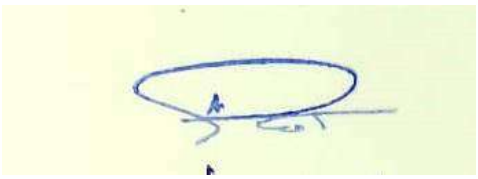
Twenty nineth	2	Learn about the comparative anatomy of the nervous system	Comparative anatomy of the nervous system in lower vertebrates	Lecture	Quizzes, dissection models, slideshows
Thirtieth	2	Learn about the comparative anatomy of the nervous system	Comparative anatomy of nervous syst in up vertebrates	Lecture	Quizzes, dissect models, slidesho

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

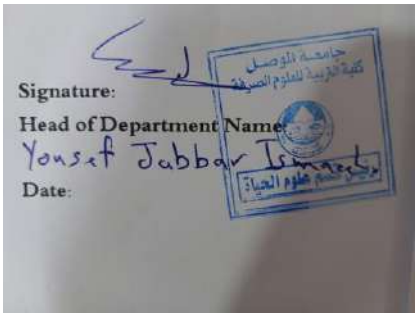
Required textbooks (curricular books any)	Comparative anatomy of vertebrates . 1985. Salah Al-Deen Al- Noory .Ibn alathir Publication house
Main references (sources)	Vertebrates, Comparative Anatomy, Function, Evolution . 2016. Mc Graw Hill Higher Education, 8ed , U.S.A.
Recommended books and references (scientific journals, reports…)	Comparative anatomy of vertebrates .2012. Mona Farid Abd Al- Rahman, Alexandria Library.
Electronic References, Websites	www.britannica.com/science/comparative-anatomy
Percentage of Curriculum update	23%



Prof. Ameer Mahmood Taha

Name and Signature

of Curriculum Administrator



Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Science Department: Biology

1. Course Name: Practical comparative anatomy of chordates

2. Course Code: **EDBI25F303**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

2/4

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

Name: Prof. Dr. Ameer M. Taha Email: amhamdany@uomosul.edu.iq
Dr. Mohammed Y. Ahmed dr.mohammedyahmed@uomosul.edu.iq
Mr. Bashar R. Karem Bashar.karem@uomosul.edu.iq
Dr. Riyadh Khalaf faris riyadh.khalaf @uomosul.edu.iq

8. Course Objectives

Course Objectives	• Knowing the basic principles of Comparative Anatomy • Knowing the classification of Chordates and Vertebrates

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Learn about the basic concepts of comparative anatomy	Fundamentals of chordate and comparative anatomy	Lecture	Quizzes, dissection mod slideshows

Second	2	Identify chordates	Protochordates	Lecture	Quizzes, dissection mode slideshows
Third	2	Learn about the classification of vertebrates	Classification aquatic vertebrat	Lecture	Quizzes, dissection mode slideshows
Fourth	2	Learn about the classification of vertebrates	Classification of Reptiles and birds	experiment	Quizzes, dissection models, slideshows
Fifth	2	Learn about the classification of vertebrates	Classification of Mammals	Problem solving	Quizzes, dissection models, slideshows
Sixth	2	Learn about the comparative anatomy of the skin	Skin in the fishes and amphibians	experiment	Quizzes, dissection models, slideshows
Seventh	2	Learn about the comparative anatomy of the skin	Skin in the Reptiles and birds	Problem solving	Quizzes, dissection models, slideshows
Eighth	2	Learn about the comparative anatomy of the skin	Skin in the Mammals	experiment	Quizzes, dissection models, slideshows
Nineth	2	Learn about the comparative anatomy of the skeletal system	Skull in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Tenth	2	Learn about the comparative anatomy of the skeletal system	vertebral column in vertebrates	experiment	Quizzes, dissection mod slideshows
Eleventh	2	Learn about comparative anato of the skeletal syst	The upper limbs vertebrates	experiment	Quizzes, dissection mod slideshows
Twelfth	2	Learn about the comparative anatomy of the skeletal system	Lower limbs in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Thirteen	2	Learn about the comparative anatomy of the muscular system	Muscular system in fish and amphipods	Lecture	Quizzes, dissection models, slideshows
Fourteenth	2	Learn about the comparative anatomy of the muscular system	The muscular system in amniotes	Problem solving	Quizzes, dissection models, slideshows
Fifteenth	2	Learn al the compara anatomy the digestive system	Comparativ anatomy of t mouth in vertebrate	lecture	Quizzes, dissect models, slidesho
Sixteenth	2	Learn about the comparative anatomy of the digestive system	Comparative anatomy of the esophagus and stomach vertebrates	lecture	Quizzes, dissection models, slideshows

Seventeenth	2	Learn about the comparative anatomy of the digestive system	Comparative anatomy of the intestine in vertebrates	lecture	Quizzes, dissection mode slideshows
Eighteenth	2	Learn about the comparative anatomy of the digestive system	Comparative anatomy of the digestion glands vertebrates	Problem solving	Quizzes, dissection models, slideshows
Nineteenth	2	Learn about the comparative anatomy of the respiratory system	Comparative anatomy of the gills vertebrates	Lecture	Quizzes, dissection models, slideshows
Twentieth	2	Learn about the comparative anatomy of the respiratory system	Comparative anatomy of the lung in amphibians and reptiles	Problem solving	Quizzes, dissection models, slideshows
Twenty first	2	Learn about the comparative anatomy of the respiratory system	Comparative anatomy of the lung in birds and mammals	Lecture	Quizzes, dissection models, slideshows
Twenty second	2	Learn about the comparative anatomy of the Circulatory system	Comparative anatomy of the heart in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Twenty third	2	Learn about the comparative anatomy of the Circulatory system	Comparative anatomy of the arteries in vertebrates	Lecture	Quizzes, dissection models, slideshows
Twenty fourth	2	Learn about the comparative anatomy of the Circulatory system	Comparative anatomy of the venues in vertebrates	Problem solving	Quizzes, dissection models, slideshows
Twenty fifth	2	Learn about the comparative anatomy of the urinary system	Comparative anatomy of the urinary system in lower vertebrates	lecture	Quizzes, dissection models, slideshows
Twenty sixth	2	Learn about the comparative anatomy of the urinary system	Comparative anatomy of the urinary system in upper vertebrates	Problem solving	Quizzes, dissection models, slideshows
Twenty seventh	2	Learn about the comparative anatomy of the congenital system	Comparative anatomy of the congenital system in lower vertebrates	Lecture	Quizzes, dissection models, slideshows
Twenty eighth	2	Learn about the comparative anatomy of the congenital system	Comparative anatomy of the congenital system in upper vertebrates	lecture	Quizzes, dissection models, slideshows

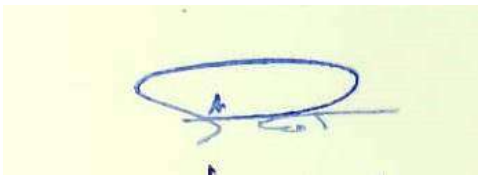
Twenty nineth	2	Learn about the comparative anatomy of the nervous system	Comparative anatomy of the nervous system in lower vertebrates	Lecture	Quizzes, dissection models, slideshows
Thirtieth	2	Learn about the comparative anatomy of the nervous system	Comparative anatomy of nervous syst in up vertebrates	Lecture	Quizzes, dissect models, slidesho

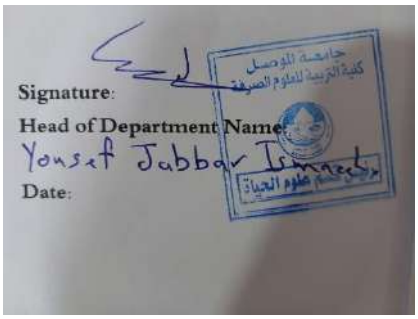
11. Course Evaluation

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 any)	Comparative anatomy of vertebrates . 1985. Salah Al-Deen Al- Noory .Ibn alathir Publication house
Main references (sources)	Vertebrates, Comparative Anatomy, Function, Evolution . 2016. Mc Graw Hill Higher Education, 8ed , U.S.A.
Recommended books and references (scientific journals, reports…)	Comparative anatomy of vertebrates .2012. Mona Farid Abd Al- Rahman, Alexandria Library.
Electronic References, Websites	www.britannica.com/science/comparative-anatomy
Percentage of Curriculum update	23%





Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: eduction of pure science

Department : Biology

1. Course Name/Course Phycology/Third class
2. Course Code: EDBI25F302
3. Semester / Year: 2024–2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: class / Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
4/6
7. Course administrator's name (mention all, if more than one name)
Dr.Yousaif Gabar Ismail yousifalshahery@uomosul.edu.iq Dr.Safaa Ismail Al-Obaidi dr.safaa100@uomosul.edu .iq
8. Course Objectives

Course Objectives	• **Knowing the basic principles of algae** • **Knowing algal classification**

9. Teaching and Learning Strategies

Strategy	Lecture, Conversation and discussions , practical experiments ,reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	2	Basic concepts	Introduction to phycology	lecture	Quiz
2	2	Basic concepts	The importance of algae	lecture	Quiz
3	2	Basic concepts	Location of algae in the plant kingdom	lecture	Quiz
4	2	Basic concepts	Basics of algal classification	lecture	Quiz
5	2	Classification and characters	Cyanophyta division	lecture	Quiz
6	2	Classification and characters	Examples of cyanophyta division	lecture	Quiz
7	2	Classification and characters	Chlorophyta division	lecture	Quiz
8	2	Classification and characters	Examples of chlorophyta division	lecture	Quiz
9	2	Classification and characters	Charophyta division	lecture	Quiz
10	2	Classification and characters	Examples of Charophyta division	lecture	Quiz
11	2	Classification and characters	Chrysophyta division	lecture	Quiz
12	2	Classification and characters	Examples of Chrysophyta division	lecture	Quiz
13	2	Classification and characters	Euglenophyta division	lecture	Quiz
14	2	Classification and characters	Xanthophyta division	lecture	Quiz
15	2	Classification and characters	Pyrophyta division	lecture	Quiz
16	2	Classification and characters	Phaeophyta division	lecture	Quiz
17	2	Classification and characters	phaeophyta (Isogenerate)	lecture	Quiz
18	2	Classification and characters	Phaeophyta (Heterogeneratae)	lecture	Quiz
19	2	Classification and characters	Phaeophyta (Cycosporae)	lecture	Quiz
20	2	Classification and characters	Rhodophyta Division	lecture	Quiz
21	2	Classification and characters	Examples of Rhodophyta Division	lecture	Quiz
22	2	Classification and characters	Introduction to archaegonatae	lecture	Quiz
23	2	Classification and characters	Archegonate divisions	lecture	Quiz
24	2	Major differences	Comparison between archegonate and algae	lecture	Quiz

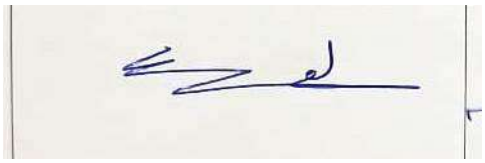
25	2	Major differences	Comparison between archegonate and flowering plants	lecture	Quiz
26	2	Bryophyta (Hepaticae)	Bryophyta (Hepaticae)	lecture	Quiz
27	2	General characters	Bryophyta (Anthocerotae)	lecture	Quiz
28	2	General characters	Bryophyta (Musci)	lecture	Quiz
29	2	General characters	Features of pteridophyta	lecture	Quiz
30	2	Classification	Pteridophyta classification	lecture	Quiz
31	2	Charcters and informention	The sustainal environment a algae	Lecture	Quiz

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

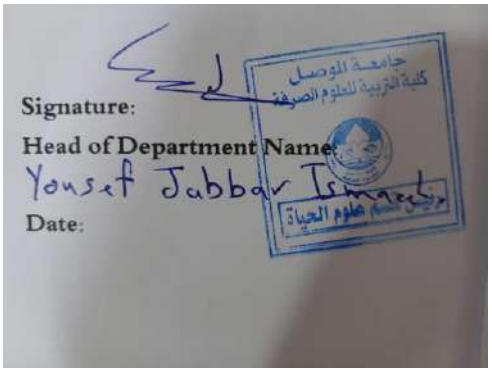
Required textbooks (curricular books, if any)	Introduction of algae Bald and Wynne. 1985
Main references (sources)	Phycology Alsaady H. and Suliman N. A. 2006 Introduction of algae 2020
Recommended books and references (scientific journals, reports…)	Practical agae Manual , Dr. Mohammed Basheer Ismael , Dr. Yousef Jabbar Isamael, Mira Usama Al-Katib
Electronic References, Websites	https://www.algaebase.org/



Prof. Dr. Yousef Jabbar Isameel

Name and Signature

Of Curriculum Administrator



Name and Signature

Of Department Head

Course Description Form

University: Mosul **College: Education for pour sciences**
Department or Branch: Biology

1. Course Name and Stage:
Practical Algae and Archegoniates / third stage
2. Course Code:
EDBI25F302
3. Semester / Year:
2024-2025
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
4/6
7. Course administrator's name (mention all, if more than one name) and Scientific title

1- Assistant Prof. Dr. Yousef jabbar Ismaeel Email: yousefalshahery@uomosul.edu.iq
2- L. Dr. Safaa Ismail Rasheer Email:dr.safaa100@uomosul.edu.iq
3- L. Dr. Bushra Esam Kamil Email: bush2019ra@uomosul.edu.iq
4- L. Dr. Zainulabdeen Hamzah Abbas Email: zainalabdeen.hamzah@uomosul.edu
5- A. L. Zubaida Mahmood saleih Email: zubaida.altayi@uomosul.edu.iq
6- A. L. Rasha Khatab Omar Email: rasha.omar@uomosul.edu.iq
7- A. L. Israa Nidhal Husain Email: israa.nidhal@uomosul.edu.iq

8. Course Objectives	
Subject Objectives	***Knowing the basic principles of algae a Archegoniates.** ***Learn about the division, varieties and types of algae a Archegoniates**
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussio problem solving , performing practical experiment reports and homework.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Understanding basic principles	Introduction to phycology	Lecture	quizzes

Second	2	Understanding basic principles	Definition of algae an their fields	Lecture	quizzes
Third	2	Understanding basic principles	Algae species and the importance	experiment	quizzes
Fourth	2	Understanding basic principles	Algae classification bases	experiment	Quiz, report , homework
Fifth	2	Practical application law	Algae Classification S and Scientific nomenclature	Problem solving	Homework
Sixth	2	Understanding basic principles	Using a microscope to inspect temporary wat slides	experiment	Quiz, report , homework
Seventh	2	Practical application law	Algae diagnosis	Problem solving	Homework
Eighth	2	Understanding basic principles	Division of Blue Gre Algae *Chroococcales*	experiment	Quiz, report , homework
Nineth	2	Recognize a microorganism	Division Blue Green Algae *Oscillatoriales*	Problem solving	Homework
Tenth	2	Recognize a microorganism	Division of Green Alg	experiment	Quiz, report , homework
Eleventh	2	Recognize a microorganism	Order of Volvocale	experiment	Quiz, report , homework
Twelfth	2	Recognize a microorganism	Order of Ulotrichales	experiment	Homework
Thirteen	2	Recognize a microorganism	Order of Chlorococcales	experiment	Quiz, and homework
Fourteenth	2	Practical applications	Screening of films on previous three orders	Problem solving	Homework
Fifteenth	2	Recognize a microorganism	Order of Chladophorales	experiment	Homework
Sixteenth	2	Recognize a microorganism	Order of Zygnematal	experiment	Quiz, report , homework
Seventeenth	2	Recognize a microorganism	Order of Charales	experiment	Quizzes
Eighteenth	2	Practical applications	Screening of films on previous three orders	Problem solving	homework
Nineteenth	2	Understanding basic principles	Euglenophyceae	experiment	homework
Twentieth	2	Understanding basic principles	Pyrrophycophyta	experiment	homework
Twenty first	2	Understanding basic principles	Chrysophyceae	experiment	homework
Twenty secon	2	Understanding ba principles	Xanthophyta	experiment	homework
Twenty third	2	Practical applications	Screening of films ab the previous three al sections	Problem solving	homework
Twenty four	2	Understanding ba principles	Bacillariophyceae	experiment	Quiz

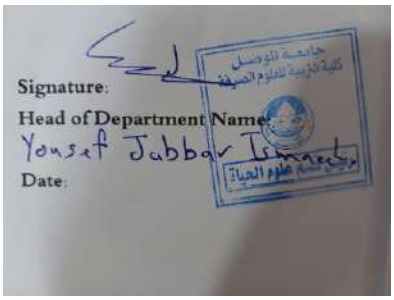
Twenty fifth	2	Understanding basic principles And Recognize microorganism	Phaeophyceae Isogenerater Heterogenerater Cyclosporae	experiment	Quiz
Twenty sixth	2	Understanding basic principles And Recognize microorganism	Rhodophyta	experiment	homework
Twenty seven	2	Understanding basic principles And Recognize microorganism	Archegoniate Bryophyte/ *Riccia Marcantia*	experiment	Quiz
Twenty eighth	2	Understanding basic principles And Recognize microorganism	Archegoniate Bryophyte/ *Anthoceros Funaria*	experiment	Quiz
Twenty nineth	2	Understanding basic principles And Recognize microorganism	Archegoniate Pteridophyta/ Adiantum Equisetum Lycopodium	experiment	Quiz
Thirtieth	1	Exam			

11. Course Evaluation and Marks

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)	1- Classification of Floral Plants – Yousef alkatib- the Writer -1990-Systematic 2- Practical algae and archigoniates - d. Mohammed Bas Ismail (d. Youssef Jabbar Ismail/m. Mra Asma Al-Kail 2006-Section Methodology
Main references (sources)	Algae and Arquicula 1991. Ibrahim Khader Moulu Nidal Idriss Suleiman and Ibrahim Tawfiq Basalem/Ibn al-Ether Printing & Publishi dar/Mosul University
Recommended books and references (scientific journals, reports…)	Botany-Algae/Vashishta et al.2012 Microalgae-Biotechnologyand Microbiology/E. W. Becker2008
Electronic References, Websites	
Percentage of Curriculum update	



Name and Signature

of Curriculum Administrator

Dr. Bushra Esam Kamil

Name and Signature

of Department or Branch Head

Prof. Dr. Youssef Jabbar Ismai

Course Description Form

University: Mosul College: Education for Pure Science
Department: Biology

1. Course Name/ Stage: Mycology/ Third

2. Course Code: **EDBI25F305**

3. Semester / Year: 2024−2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

4/6

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

Name Prof. Dr. Shimal Yonis Abdulhadi
Email: shimalyounis2018@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of fungi** • **Knowing the classification of fungi**

9. Teaching and Learning Strategies

Strategy	theoretical lecture , talk and discussions, problem solving , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Knowledge and skill	Introduction of fungi	Lecture, Black board,	Oral questions

				presentation	
Second	2	Knowledge and skill	General characteristics of fungi	Lecture,	Quizzes Oral questions,
Third	2	Knowledge and skill	Different ways life in fungi	Posters, presentations	quizzes
Fourth	2	Understanding reproduction of fungi	Reproduction in fungi	Lecture,	Quiz, report , homework
Fifth	2	Knowledge and skill	The importance of fungi and their ecological relationships	Black board, presentationsie	Quiz, oral questions
Sixth	2	Understanding the basic of classification	(1 Kingdom: Protista Division: Myxomycota Class: Myxomycetes	Lecture,	Quiz, oral questions
Seventh	2	Knowledge and skill	Phylum: Plasmodiophoromycetes	Lecture, presentations	Quiz, oral questions
Eighth	2	Knowledge and skill	2) Kingdum: Straminopilia	Lecture, presentations	Quiz, oral questions
Nineth	2	Knowledge and skill	Order: Saprolegniales	Lecture, presentations	Quiz, oral questions
Tenth	2	Knowledge and skill	1_ Family: Pythiaceae G: Pythium و Phytophthora	Lecture,	Quiz, oral questions
Eleventh	2	Knowledge a skill	2-Family: Peronosporaceae ر Plasopara viticola −3Family: Albuginaceae G: Albugo candida	Lecture,	Quiz, oral questions
Twelfth	2	Knowledge and skill	3)Kingdom: Fungi Phylum: Chytridiomycota G: Synchytrium endobioticum	Posters, presentations	Quiz, oral questions
Thirteen	2	Knowledge and skill	Phylum: Zygomycota Class: Zygomycetes 1−Order: Mucorales 1-Family: Mucoraceae	Lecture, presentations,	Quiz, oral questions
Fourteenth	2	Knowledge and skill	2_ family: Endogonaceae G: Endogon و Glomus 3_Family: Pilobolaceae G: Pilobolus	Lecture, presentations	Quiz, oral questions
Fifteenth	1	Knowle and skil	2)Order: Entomophthorales G: Entomophthora musc	Lecture, presentations	Quiz, oral questions
Sixteenth	2	Knowledge and skill	Phylum: Ascomycota	Lecture, presentations	Quiz, oral questions
Seventeenth	2	Knowledge and skill	1-Subphylum: Saccharomycotina Class: Saccharomycetes	Lecture,	Quiz, oral questions

Eighteenth	2	Knowledge and skill	**2-Subphylum: Taphrinomycotina** **1-Class: Schizosaccharomycetes** **Order: Schizosaccharales** **G: Schizosaccharomyces**	**Lecture,**	**Quiz, oral questions**
Nineteenth	2	Knowledge and skill	**2-Class: Taphrinomycetes**	**Posters, presentations**	Quiz, oral questions
Twentieth	2	Knowledge and skill	**Subphylum: Pezizomycotina** **Class: Leotiomycetes** **Order: Erysiphales**	**Lecture, presentations**	Quiz, oral questions
Twenty first	2	Knowledge and skill	2_Order: Helotiales Family: Sclerotiniaceae G: Sclerotina fructicola	Posters, presentations	Quiz, oral questions
Twenty second	2	Knowledge and skill	Class: Eurotiomycetes Order: Eurotiales	Lecture,	Quiz, oral questions
Twenty thir	2	Knowledge and skill	Class: Sordariomycetes 1-Order: Hypocreales G: Claviceps purpurea 2-Order: Sordariales Class: Dothidiomycetes Order: Pleosporales G: Venturia inqualis	Posters, presentations	Quiz, oral questions
Twenty fourth	2	Knowledge and skill	Class: Pezizomycetes Order: Pezizales	Lecture, presentations,	Quiz, oral questions
Twenty fifth	2	Knowledge and skill	Phylum: Basidiomycota Class: Teliomycetes Order: Uredinales G:Puccinia graminis	Lecture, presentations	Quiz, oral questions
Twenty sixth	2	Knowledge and skill	Order: Ustilaginales −1family: Ustilaginaceae e.g: Ustilago nuda −2family: Tilletiaceae e.g: Tilletia caries	Lecture, presentations	Quiz, oral questions
Twenty seventh	2	Knowledge and skill	Class: Hymenomycetes Order: Agaricales Order: Polyporales Polyporus و Hydnum	Lecture, Posters, presentations	Quiz, oral questions
Twenty eighth	2	Knowledge and skill	Phylum: Deuteromycota Class: Coelomycetes Order: Spheropsidales e.g: Septoria	Lecture,	Quiz, oral questions
Twenty nineth	2	Knowledge and skill	Mycorhiza	Lecture, Posters, presentations	Quiz, oral questions
Thirtieth	1	Knowle and skil	lichens	Lecture,	Quiz, oral questions

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.... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	The Fungi. Edited by Dr. Talib O.Al-Khesraji –First print-2012.
Main references (sources)	Introduction to Fungi / Webster and Weber, 3ed ed., 2007 ,Cambridge University Press
Recommended books and references (scientific journals, reports…)	Introductory mycology . 3d ed. 1979. •
Electronic References, Websites	https://www.davidmoore.org.uk
The curriculum percentage update	20%

Prof. Dr. Shimal Yonis Abdulhadi
Name and signature of curriculum administrator

Name and signature of department head

Course Description Form

University: Mosul **College: Education for Pure Science** **Department: Biology**

1. Course Name and Stage:
Practical Mycology / Third stage
2. Course Code:
EDBI25F305
3. Year:
2024−2025
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Laboratory, google classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
2hours/ 2 units
7. Course administrator's name (mention all, if more than one name) and Scientific title
Lecturer Dr. Rafea Qasim Mohammed Email: dr.rafeaqm@uomosul.edu.iq Lecturer Dr. Zena Wajeeh Aljaer Email: dr.zena.algader@uomosul.edu.iq Lecturer Dr. Noor Aamer Mohammed Ali Email: noorameeralaubidi@uomosul.edu.iq Lecturer: Mohammed Zaghlool Saeed Email: mohammed72@uomosul.edu.iq
8. Course Objectives

Subject Objectives	• Preparing fungal cultures. • Identification of the methods of isolating and preserving pure cultures. • Identification of the characteristics of typical types of fungi. • Studying the slides, pictures, and typical samples from different fungal sections.
9. Teaching and Learning Strategies	
10. Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework.

11. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Students' comprehension of sterilization topic	Sterilization, equipments and materials used in mycology laboratory	Lecture	Homework
Second	2	Students' Comprehension	Cultures, their types and methods of preparing	Lecture	Homework

		of cultures and their preparing method			
Third	2	Students' comprehension isolation methods	1. Isolating fungi from different sources 2. Methods for preparing microscope slides and mounting media	Lecture	Quiz, , homew
Fourth	2	Students' comprehension about the method examination and the types of fungal cultures	1. Study spore germination and spore counting methods, and fungal growth measurement method. 2. Examination of different species of fungi in fungal cultures that were isolated in the previous laboratory by preparing slides.	Lecture	Homework
Fifth	2	The student learns about preservation methods	1. Collection and Preservation methods of macrofungi 2. Fungal preservation methods	Lecture	Homework
Sixth	2	Students' comprehension structure, function,and classification	Phylum : Myxomycota	Lecture, pictures, slides	Quiz, , homew
Seventh	2	Students' comprehension structure, function,and classification	Phylum : Plasmodiophoromycota	Lecture, pictures, slides	Homework
Eighth	2	Students' comprehension structure, function,and classification	Class : Oomycetes Order : Saprolegniales	Lecture, pictures, slides	Homework
Nineth	2	Students' comprehension structure, function,and classification	Class : Oomycetes Family : Pythiaceae	Lecture, pictures, slides	Quiz, , homew
Tenth	2	Students' comprehension structure, function,and classification	Class : Oomycetes Family: Peronosporaceae	Lecture, pictures, slides	Homework

Eleventh	2	Students' comprehension structure, function,and classification	Class : Oomycetes Family: Albuginaceae	Lecture, pictures, slides	Homework
Twelfth	2	Students' comprehension structure, function,and classification	Phylum: Chytridiomycota	Lecture, pictures, slides	Quiz, , homew
Thirteenth	2	Students' comprehension structure, function,and classification	Class : Zygomycetes Order: Mucorales	Lecture, pictures, slides	Homework
Fourteenth	2	Students' comprehension structure, function,and classification	Class : Zygomycetes Order: Entomophthorales	Lecture, pictures, slides	Homework
Fifteenth	1	Exam			
Sixteenth	2	Students' comprehension structure, function,and classification	Phylum: Ascomycota Subphylum : Saccharomycotina	Lecture, pictures, slides	Homework
Seventeenth	2	Students' comprehension structure, function,and classification	Subphylum: Pezizomycotina Class:Leotiomycetes 1. Order : Erysiphales	Lecture, pictures, slides	Homework
Eighteenth	2	Students' comprehension structure, function,and classification	Subphylum:Pezizomycotina Class:Leotiomycetes 2. Order : Helotiales 3. Order Rhytismatales	Lecture, pictures, slides	Quiz , homewo
Nineteenth	2	Students' comprehension structure, function,and classification	Class : Eurotiomycetes	Lecture, pictures, slides	Homework
Twentieth	2	Students' comprehension structure, function,and classification	Class: Sordariomycetes	Lecture, pictures, slides	Homework
Twenty first	2	Students' comprehension structure, function,and	Class: Dothidiomycetes	Lecture, pictures, slides	Quiz, , homew

		classification			
Twenty second	2	Students' comprehension structure, function,and classification	Class:Pezizomycetes	Lecture, pictures, slides	Homework
Twenty third	2	Students' comprehension structure, function,and classification	Class **:** Basidiomycetes Subclass: Holobasidiomycetidae	Lecture, pictures, slides	Homework
Twenty fourth	2	Students' comprehension structure, function,and classification	Subclass : Teliomycetidae 1. Order: Ustilaginales	Lecture, pictures, slides	Quiz, , homew
Twenty fifth	2	Students' comprehension structure, function,and classification	2. Order : Uredinales	Lecture, pictures, slides	Homework
Twenty sixth	2	Students' comprehension structure, function,and classification	Phylum: Deuteromycota 1- Form – class: Coelomycetes	Lecture, pictures, slides	Homework
Twenty seventh	2	Students' comprehension structure, function,and classification	2- Form – class: Hyphomycetes	Lecture, pictures, slides	Quiz , homewo
Twenty eighth	2	Students' comprehension structure, function,and classification	Mycorrhiza	Lecture, pictures, slides	Homework
Twenty nineth	2	Students' comprehension structure, function,and classification	Lichen	Lecture, pictures, slides	Homework
Thirtieth	1	Exam			

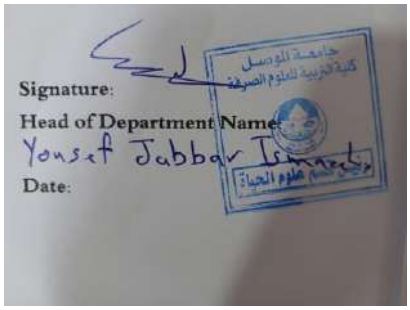
12. Course Evaluation and Marks

13. 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 .

14.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Introduction to Fungi .Webster and Weber, 3ed 2007 ,Cambridge University Press.
Recommended books and references	Benson's Microbiological Applications Laboratory

(scientific journals, reports...)	Manual in General Microbiology, Alfred E. Brown, 8th ed., 2001, McGraw−Hill Companies.
Electronic References, Websites	https://www.davidmoore.org.uk
Percentage of Curriculum update	20%



Dr. Rafea Qasim Mohammed

Name and Signature

of Curriculum Administrator

Prof. Dr. Yousef J. I. Al-Shaherey

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: College of Education for Pure Science
Department or Branch: Biology

1. Course Name and Stage: Counseling & Mental Health / Stage : Third

2. Course Code: EDBI25F307

3. Semester / Year: 2024 - 2025

4. Description Preparation Date: 1 / 9 / 2024

5. Available Attendance Forms: In-person - electronic class

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

2 hours / 4 units

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

Name: Assist. Ahmed Adeeb Qanbar Shehab
Email : ahmed.adeeb@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• Identify the basic concepts of the counseling process. • Learn about psychological counseling theories. • Identify the importance of mental health.

9. Teaching and Learning Strategies

Strategy	Theoretical and practical lectures, dialogue and discussions, brainstorming, problem solving, conducting practical experiments, reports and daily assignments.

10. Course Structure

Week	Hours	Required Learning Outcomes	First	Learning method	Evaluation method

First	**2 hours**	**The student should understand the concepts of counseling and its origin.**	**The concept of guidance, its origin and development.**	**Lecture and discussion**	**Quizzes**
Second	**2 hours**	**The student should clarify the justifications for counseling and its objectives.**	**Justifications for counseling and its objectives in the educational process.**	**Lecture and discussion**	**Quizzes**
Third	**2 hours**	**To understand the relationship between counseling in other sciences and areas of counseling.**	**The relationship between counseling and other sciences, areas of counseling.**	**Lecture and discussion**	**Quizzes**
Fourth	**2 hours**	**To differentiate between the methods of counseling in the educational process.**	**Counseling methods (individual – collective).**	**Lecture and discussion**	**Quizzes**
Fifth	**2 hours**	**To distinguish between the foundations of psychological counseling.**	**The foundations of psychological counseling (philosophical - social).**	**Lecture and discussion**	**Homework**
Sixth	**2 hours**	**To distinguish between the foundations of psychological counseling.**	**The foundations of psychological counseling (moral - religious - psychological).**	**Lecture and discussion**	**Quizzes and Homework**
Seventh	**2 hours**	**The student should understand the most important problems addressed by psychological and educational counseling.**	**Problems addressed by educational and psychological counseling.**	Lecture and discussion **And solve problems**	**Homework**
Eighth	**2 hours**	**To understand the relationship. meaning of mental health and its.**	**The meaning of mental health, its relationship and importance.**	**Lecture and discussion**	**Quizzes**
Ninth	**2 hours**	**To know personal integration, mental health goals.**	**Mental health goals, personal integration.**	**Lecture and brainstorming**	**Quizzes**
Tenth	**2 hours**	**The student should distinguish between normal personality and abnormal personality.**	**Normal and non-Normal personality.**	**Lecture and discussion**	**Quizzes and Homework**
Eleventh	**2 hours**	**The student should know personal crises.**	**Personal crises.**	**Lecture and discussion**	**Quizzes and Homework**
Twelve	**2 hours**	**The student should**	**Frustration, its types**	**Lecture,**	**Homework**

		summarize the reasons for the frustration.	**and causes.**	**discussion and problem solving**	
Thirteenth	**2 hours**	**The student should explain the most important mental disorders.**	Mental disorders .	**Lecture**	**Quizzes and Homework**
Fourteenth	**2 hours**	**The student should know the concept of compatibility.**	**Compatibility, its types and characteristics.**	**Lecture, discussion, problem solving**	**Homework**
Fifteenth	**An hour and a half**		**Semester Exam**		
Sixteenth	**2 hours**	**The student should know the concept of adaptation, its types and characteristics.**	**Adaptation, its types and characteristics .**	**Lecture and discussion**	**Quizzes and Homework**
Seventeenth	**2 hours**	**The student should explain the role of psychoanalytic theory in psychological counseling.**	**Psychoanalytic Theory in psychological counseling.**	**Lecture and discussion**	**Quizzes**
Eighteenth	**2 hours**	**The student should explain the role of behavioral theory in psychological counseling.**	**Behavioral Theory**	**Problem Solving**	**Quizzes and Homework.**
Nineteenth	**2 hours**	**The student should explain the role of existential theory in psychological counseling.**	Existential theory .	**Lecture and discussion**	**Quizzes**
Twentieth	**2 hours**	**The student should explain the role of the theory of humanity in psychological counseling.**	**The theory of humanism .**	**Problem Solving**	**Homework**
Twenty-first	**2 hours**	**The student collects the most important information necessary for guidance.**	**Information necessary for guidance and the importance of information.**	**Lecture and discussion**	**Quizzes**
Twenty-second	**2 hours**	**The student should understand the role of the cumulative record, CV and narrative record.**	**Cumulative record, curriculum vitae and anecdotal record.**	**Lecture, discussion, problem solving**	**Homework**
Twenty-third	**2 hours**	**The student should understand the**	**Observation and interview.**	**Lecture, discussion**	**Quizzes**

		concept of the role of observation and interview.			
Twenty-fourth	**2 hours**	**The student should understand the role of guidance and counseling in the school.**	**Guidance and counseling at school.**	**Lecture, discussion, problem solving**	**Homework**
Twenty-fifth	**2 hours**	**The student should understand the role of parent-teacher councils in counseling.**	**The role of parent-teacher councils in counseling.**	**Lecture, discussion**	**Quizzes**
Twenty-sixth	**2 hours**	**The student should understand defense mechanics and their types.**	**Defensive mechanisms and their types.**	**Lecture, discussion, problem solving.**	**Homework**
Twenty-seventh	**2 hours**	**The student should explain the types of defense mechanisms.**	**Types of defense Mechanisms**	**Lecture, discussion**	**Quizzes**
Twenty-eighth	**2 hours**	**The student should explain the causes of the pathological, defensive and escaped symptoms.**	**Pathological, defensive and herpetic symptoms.**	**Lecture, discussion**	**Quizzes**
Twenty-ninth	**2 hours**	**The student knows the concept of depression and its types.**	**Depression and its types.**	**Lecture, discussion**	**Quizzes**
Thirtieth	**2 hours**		**Semester exam**		

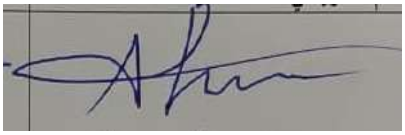
11. Course Evaluation and Marks

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)	- C - Psychological Counseling and Educational Guidance, Mustafa Mahmoud Al-Imam, et al., (1991) at the University of Baghdad. - Principles of Psychological Counseling for Counselors and Psychologists, - Mohammed Ahmed Mashaqbeh (2008) Amman, Dar Al-Manhaj for Publishing and Distribution. -Psychological Guidance and Counseling, Hamed Abdel Salam Zahran (2005), Cairo, World of Books.
Main references (sources)	-The reference in mental health, Adeeb Muhammad Al-Khalidi (2009) Baghdad Erbil Office.-
Recommended books and references (scientific journals, reports…)	- DSM-5 Statistical Diagnostic Guide to Psychiatry a Research from the American Psychological Counsel Association.
Electronic References, Websites	- The website of the World Health Organization and

	sites of scientific journals.
Percentage of Curriculum update	10%



Name and Signature

of Curriculum Administrator

Assist.Lec. Ahmed Adeeb Kanbar

Name and Signature

of Department or Branch Head

Course Description Form

- Course Name/ Stage:

Foundations of Scientific research/ third stage

- Course Code:

EDB125F308

- Semester / Year:

The first and second semesters of the 2024−2025 academic year

- Description Preparation Date:

2024/9/1

- Available Attendance Forms:

In-person and electronic

- Number of Credit Hours (Total) / Number of Units (Total)

4/2

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

Name: Zeyad Bader Hamad
Email: dr.zeyadhamad78@uomosul.edu.iq

- Course Objectives

Course Objectives	**• • For the student to become familiar with scientific research methods.** **• For the student to become familiar with research sources and references, libraries and their history, and means of presenting scientific research.** **• The student must have the characteristics of a researcher.** **• That the student acquires the skill of research techniques.** **• The student will acquire the skill of research using the computer and the information network.** **• The student must be proud of his civilization and heritage in the field of scientific research.** **To be objective and scientifically honest when becoming a researcher.**

- Teaching and Learning Strategies

Strategy	• Managing lectures in a way that shows the importance of time. • Group activities for which 10% of the grade is allocated. • Individual and group assignments that require the use of the library and the Internet. • Increasing the spirit of positive competition. • Reciprocal teaching.

- Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge and skill	Basic concepts in scientific research, including: methods of accessing	Electronic integrated i the lecture	a test

			knowledge, assumptions scientific research, objectives of scientific research.		
2	2	Knowledge and skill	Specifications of good research, problems of scientific method in educational research, ethical principles in scientific research.	Electronic integrated the lecture	a test
3	2	Knowledge and skill	Scientific research steps: choosing the research problem, reviewing literature related to the study, formulating research hypotheses.	Electronic integrated the lecture	a test
4	2	Knowledge and skill	Designing the research plan, collecting data, presenting and analyzing data, and writing the report.	Electronic integrated the lecture	a test
5	2	Knowledge and skill	Research plan design: Eleme of the research plan include: - Search title. - Introduction. - Research problem.	Electronic integrated the lecture	a test
6	2	Knowledge and skill	- Research hypotheses. - Research variables. - Importance. - Research objectives. - Previous studies.	Electronic integrated the lecture	a test
7	2	Knowledge and skill	Research methodology procedures	Electronic integrated the lecture	a test
8	2	Knowledge and skill	Reference list: How to write references: books, scientific theses, and research published scientific journals (periodicals), conferences, websites (in Arabic and English and providing examples for them)	Electronic integrated the lecture	a test
9	2	Knowledge and skill	Research Methods A- Historical research: - The basic characteristics of historical research. - Primary sources secondary sources.	Electronic integrated the lecture	a test
10	2	Knowledge and skill	- Strengths and shortcomings in historical research. Steps of historical research	Electronic integrated the lecture	a test
11	2	Knowledge and skill	Descriptive research: - Types of descriptive research. - Survey research: Types of survey research: educational survey, social survey, cultural survey, and	Electronic integrated the lecture	a test

			public opinion survey.		
12	2	Knowledge and skill	Content analysis, business analysis, case study, comparative graduate studies.	Electronic integrated the lecture	a test
13	2	Knowledge and skill	B- Experimental research: □ The concept of experimental research and its characteristics. □ Variables in experimental research. □ Validity in experimental research.	Electronic integrated the lecture	a test
14	2	Knowledge and skill	Experimental designs: quasi-experimental designs, true experimental designs, factorial experimental designs, and one-individual designs.	Electronic integrated the lecture	a test
15	2	Knowledge and skill	C- Qualitative research: □ Characteristics of qualitative research, difference between qualitative research quantitative research.	Electronic integrated the lecture	a test
16	2	Knowledge and skill	□ Collecting information in qualitative research. Steps for implementing qualitative research	Electronic integrated the lecture	a test
17	2	Knowledge and skill	Samples in scientific research: □ Population and sample. □ Types of samples: probability samples and non-probability samples.	Electronic integrated the lecture	a test
18	2	Knowledge and skill	□ Steps for selecting the sample. □ Estimating the sample size. General errors in sample selection	Electronic integrated the lecture	a test
19	2	Knowledge and skill	7- Tools and means of collecting data: □ Observation. □ Interview.	Electronic integrated the lecture	a test
20	2	Knowledge and skill	Questionnaire	Electronic integrated the lecture	a test
21	2	Knowledge and skill	8- Tools and means of collecting data: tests and standards □ Research variables. □ Measurement and its types. □ Levels of measurement. □ Tests and their classifications.	Electronic integrated the lecture	a test
22	2	Knowledge and skill	Characteristics of standardized tests:	Electronic integrated the lecture	a test

			objectivity, application conditions, standards, validity (types of validity), and reliability (methods of extracting reliability)		
23	2	Knowledge and skill	10. Writing the research report: It includes the following steps: ? Writing the research problem: It includes: introduction to the research, defining the problem and its questions, the purpose of the research (justifications for the research), the importance of the research, the research hypotheses and questions, and procedural definitions of the most important terms. ? Review of the study's literature: theoretical framework previous studies	Electronic integrated the lecture	a test
24	2	Knowledge and skill	? Research procedures: These include the research methodology and design, the sample, research materials, tools and procedures, experimental control of the research, and data analysis. ? Research results: statistical analysis, reading and interpreting the results. ? Summary of the research. - List of references. ? Appendices Introductory and concluding pages	Electronic integrated the lecture	a test
25	2	Knowledge and skill	11. Basic considerations in writing a research report: ? Display information and da ? Research language and style: precise wording, use of appropriate sentences and structures, selection of words and phrases that serve the purpose, grammar and morphology, and punctuatio ? Use of signs: punctuation, commas, parenthe abbreviations.	Electronic integrated the lecture	a test
26	2	Knowledge and skill	? Writing main and sub-headings. ? The physical and technical form of the research.	Electronic integrated the lecture	a test

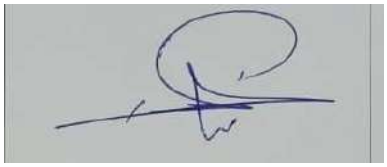
			▯ Search volume and number of pages. ▯ Paper that is uniform in form and type. ▯ Clear printing and elegant writing. ▯ Footnotes and margins, cover and binding.		
27	2	Knowledge and skill	12. Applications from the student's guide to writing research papers (preface, body, references) Introduction: title page, abstract, dedication page, thanks page, list	Electronic integrated the lecture	a test
28	2	Knowledge and skill	Contents, list of figures, drawings and tables, list of appendices. Text: Research chapters. Appendices: Arranging organizing the appendices.	Electronic integrated the lecture	a test
29	2	Knowledge and skill	13. Uses of statistics in psychological educational research: Descriptive statistics, inferential statistics, using statistical significance in research, hypotheses, choosing statistical test.	Electronic integrated the lecture	a test
30	2	Knowledge and skill	Significance level, sample s use of statistics in analyzing results, presentation of results in tables.	Electronic integrated the lecture	a test

• Course Evaluation

25% half the year
5% daily exams
5% activity (report or lecture)
5% semester exam
60% end-of-year exam

• Learning and Teaching Resources

Required textbooks (curricular books, if any)	Obligatory to collect and prepare the subj teacher
Main references (sources)	A book of lectures on scientific research methodology Dr.. Iyad Youssef
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	
Percentage of curriculum update	



Assit Prof. Dr. Zeyad Badr Hamad
Name and signature of curriculum administrator

Name and signature of Department head

Course Description Form

University: Mosul College: Education for Pure Science

Department: Biology

Course Name/ stage: Method of Teaching & Curriculum/ third 1.
2. Course Code: EDBI25F306
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: in class room …& Classroom
6. Number of Credit Hours (Total) / Number of Units (Total) : 2
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Prof. Dr. Maarib Mohmaad Ahmad Email: dr.maarib.ahmad@uomosul.edu.iq
8. Course Objectives

Course Objectives	• Knowing the concept of Science, teaching, Learning, method of teaching. planing of teaching. • Knowing what meaning of the Curriculum. • Knowing the model of method & Strategie • Knowing the practical & applications of

	Method from application in class.

9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, problem solving, Cooperative education, Brainstorming, Programmed education, The meaning of planning and its types, , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Knowledge, Understanding, applications	Concept of Science & what skilles Science	Lecture and discussions	Shareing in class& interaction with students
Second	2	Knowledge, Understanding, applications	the Curriculum.	Lecture and discussions	Shareing in class& interaction with students
Third	4	Knowledge, Understanding, applications	Types of curricula	Lecture Cooperative learning	Shareing in class& interaction with

					students
Fourth	2	Knowledge, Understanding, applications	Elements of the educational process	Cooperative learning	Shareing in class& interaction with students
Fifth	4	Knowledge, Understanding, applications	Educational Objectives	Problem solving, Brains–torming	Homework, Shareing in class& interaction
Sixth	2	Knowledge, Understanding, applications	Applications of group student	Experiment in class	report , homework
Seventh	2	Knowledge, Understanding, applications	basic principles of teaching	Lecture and discussions	Homework
Eighth	2	Knowledge, Understanding, applications	Characteristics of good teaching	Lecture and discussions	report , homework, Cooperative learning
Nineth	2	Knowledge, Understanding, applications	the Principles of Lecture	Lecture and discussions	Homework, Cooperative Learning among student
Tenth	2	Understanding the basic principles of Discussions	Discussions method.	Experiment Cooperative	report Homework,

		method.		Learning among stude	
Eleventh	2	Knowledge, Understanding, applications	Programmed learing	experiment	report , homework
Twelfth	2	Knowledge, Understanding, applications	Problem solving	Problem solving & Cooperative group	Homework
Thirteen	4	Knowledge, Understanding, applications	Model of Cooperative learning	Lecture, Cooperative group	Quiz, and homework
Fourteenth	4	Knowledge, Understanding, applications	Playing &project method	Playing group& discussions	report , Homework,
Fifteenth	1	Exam			
Sixteenth	2	Understanding the basic principles	Laboratory method	Lecture& discussions	, report , homework, Cooperative Learning among studen
Seventeenth	4	Knowledge, Understanding, applications	What meaning of planning and its types,	lecture	Quizzes
Eighteenth	4	Knowledge, Understanding, applications	Example of planning	Cooperative Learning among studen	Quiz, & report homework

	1	Exam			

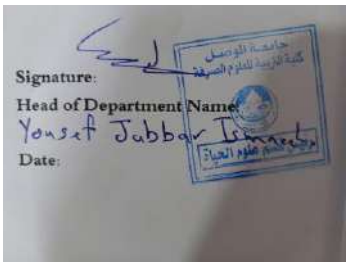
11. Course Evaluation

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

تدريس العلوم في مراحل التعليم العام	الخليلي، خليل يوسف واخرون(1996) تدريس العلوم في مراحل التعليم العام، دار القلم للنشر، الامارات العربية
Main references (sources)	اساليب التدريس الجامعي، عايش زيتون، استراتيجيات وطرائق في تدريس العلوم، نماذج في تدريس العلوم وفق النظرية البنائية – طرائق التدريس الحديثة رؤية أكاديمية. **ماجد رحيمة الحلفي** – طرق التدريس الحديثة في القرن الواحد والعشرين **المؤلف**: للدكتور عبد اللطيف بن حسين بن فرج . استراتيجيات حديثة في طرائق تدريس العلوم **المؤلف:** صبحي ابو جلالة .
Recommended books and references (scientific journals, reports…)	From internet
Electronic References, Websites	https://learn. Strategies, edu/
Percentage of curriculum update	

Assist prof. Dr. Maarib Mohmaad Ahmad
Name and Signature of
Curriculum administrator



Name and Signature of
Department Head

Course Description Form

University: Mosul College: Education for Pure Sciences
Department: Biology

1. Course Name/ stage: Histology/ 2nd stage

2. Course Code: **EDBI25F203**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Lecture , Classroom

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

4/6

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

Name: Assist. Prof. Dr. Sanabel Abdul-monem Abdul-majeed
Email: sanabel.althanoon@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of Histology** • **Knowing the structure of animal tissues**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, reports and quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Understanding structure and Function	Introduction of life science	Lecture	Quizzes and oral questions

Second	2	Understanding structure and Function	Epithelial tissue part 1	Lecture	Quizzes and oral questions
Third	2	Understanding structure and Function	Epithelial tissue part 2	Lecture	Quizzes and oral questions
Fourth	2	Understanding structure and Function	Connective tissue part 1	Lecture	Quizzes and oral questions
Fifth	2	Understanding structure and Function	Connective tissue part 2	Lecture	Quizzes and oral questions
Sixth	2	Understanding structure and Function	Connective tissue – skeletal part 1	Lecture	Quizzes and oral questions
Seventh	2	Understanding structure and Function	Connective tissue – skeletal part 2	Lecture	Quizzes and oral questions
Eighth	2	Understanding structure and Function	Connective tissue – Blood part 1	Lecture	Quizzes and oral questions
Nineth	2	Understanding structure and Function	Connective tissue – Blood part 2	Lecture	Quizzes and oral questions
Tenth	2	Understanding structure and Function	Muscular tissue part 1	Lecture	Quizzes and oral questions
Eleventh	2	Understanding structure and Function	Muscular tissue part 2	Lecture	Quizzes and oral questions
Twelfth	2		Practical exam		
Thirteen	2		Practical exam		
Fourteenth	2		Mid-year exam		
Fifteenth	1		Mid-year exam		
Sixteenth	2	Understanding structure and Function	Nervous tissue part 1	Lecture	Quizzes and oral questions
Seventeenth	2	Understanding structure and Function	Nervous tissue part 2	Lecture	Quizzes and ora questions
Eighteenth	2	Understanding structure and Function	Circulatory system part 1	Lecture	Quizzes and oral questions
Nineteenth	2	Understanding structure and Function	Circulatory system part 2	Lecture	Quizzes and oral questions

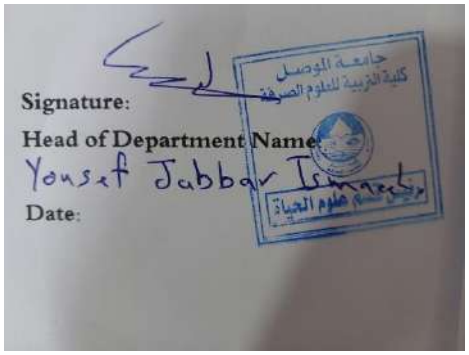
Twentieth	2	Understanding structure and Function	Immune system	Lecture	Quizzes and oral questions
Twenty first	2	Understanding structure and Function	Skin	Lecture	Quizzes and oral questions
Twenty second	2	Understanding structure and Function	Digestive system part 1	Lecture	Quizzes and oral questions
Twenty third	2	Understanding structure and Function	Digestive system part 2	Lecture	Quizzes and oral questions
Twenty fourth	2	Understanding structure and Function	Respiratory system	Lecture	Quizzes and oral questions
Twenty fifth	2	Understanding structure and Function	Urinary system	Lecture	Quizzes and oral questions
Twenty sixth	2	Understanding structure and Function	Reproductive systyem	Lecture	Quizzes and oral questions
Twenty seventh	2		Practical exam		
Twenty eighth	2		Practical exam		
Twenty nineth	2		Mid-year exam		
Thirtieth	1		Mid-year 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

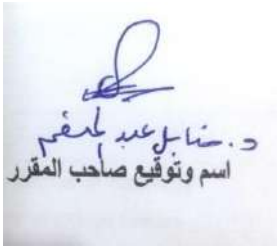
12. Learning and Teaching Resources

Required textbooks (curricular books, if a	Histology Part 1 and 2 Kawakib Al-Mukhtar and Abdul – Hakim Al-rawi, 2000
Main references (sources)	Janqueria L.C. et al., (1986) Basic Histology
Recommended books and references (scientific journals, reports…)	Gartner P.L. Textbook of Histology 4th edition 2016
Electronic References, Websites	http://www.classcentral.com/subject/histology
Percentage of Curriculum update	



Name and Signature

of Curriculum Administrator



Assist. Prof. Dr. Sanabel Abdul-monem Abdul-majeed

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Science Department: Biology

1. Course Name: Practical Histology

2. Course Code: **EDBI25F203**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 2024/9/1

5. Available Attendance Forms: Laboratory , Classroom

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

2/2

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

Name: Prof. Dr. Ameer M. Taha Email: amhamdany@uomosul.edu.iq
Dr. Semaa A. Baker semaaabakir123@uomosul.edu.iq
Dr. Riyadh Khalaf faris riyadh.khalaf @uomosul.edu.iq
Mss. Ekhlass K. Hamid ekhlasshamid@uomosul.edu.iq
Mr. Bashar R. Karem Bashar.karem@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of histology** • **Knowing the the theoretical foundations of hun body tissues**

9. Teaching and Learning Strategies

Strategy	Theoretical lecture, dialogue and discussions, animal dissection, slide show

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

first	2	Learn about the basic concepts of histology	Microscopic preparations	Lecture	Quizzes and Practica application
Second	2	Identify epithelial tissues	Simple Epithelial tissues	Lecture	examinations, slides f models
Third	2	Identify epithelial tissues	Compound Epithelial tissues	Lecture	examinations, slides f mode
Fourth	2	Identify epithelial tissues	Glandular Epithelial tissues	Lecture	examinations, slides for mode
Fifth	2	Identify connective tissues	Elements of connective tissues	Lecture	examinations, slides for mode
Sixth	2	Identify connective tissues	Loose connective tissues	Lecture	examinations, slides for mode
Seventh	2	Identify connective tissues	Dense connective tissues	Lecture	examinations, slides for mode
Eighth	2	Identify connective tissues	Skeletal connective tissues\ cartilage	Lecture	examinations, slides for mode
Nineth	2	Identify connective tissues	Skeletal connective tissues\ bone	Lecture	examinations, slides for mode
Tenth	2	Identify connective tissues	Special connective tissues\ blood	Lecture	examinations, slides mode
Eleventh	2	Identify Muscular tissues	Skeletal Muscular tissues	Lecture	examinations, slides mode
Twelfth	2	Identify Muscular tissues	Smooth Muscular tissues	Lecture	examinations, slides for mode
Thirteen	2	Identify Muscular tissues	Cardic Muscular tissues	Lectur	examinations, slides for mode
Fourteenth	2	Identify Nervous tissues	Nervous tissues	Lecture	examinations, slides for mode
Fifteenth	2	Identify Nervous tissues	Central Nervous tissues	cture	examinations, slides for mod
Sixteenth	2	Identify the histological structure of the	Histological structure of heart	Lecture	examinations, slides for mode

		circulatory system			
Seventeenth	2	Identify the histological structure of the circulatory system	Histological structure of arteries	Lecture	examinations, slides f mode
Eighteenth	2	Identify the histological structure of the circulatory system	Histological structure of venues	Lecture	examinations, slides for mode
Nineteenth	2	Identify the histological structure of lymphatic organs	Histological structure of lymph nodes and thymus	Lecture	examinations, slides for mode
Twentieth	2	Identify the histological structure of lymphatic organs	Histological structure of tonsil andspleen	Lecture	examinations, slides for mode
Twenty first	2	Identify the histological structure of the digestive system	Histological structure of tongue	Lecture	examinations, slides for mode
Twenty second	2	Identify the histological structure of the digestive system	Histological structure of esophagus	Lecture	examinations, slides for mode
Twenty third	2	Identify the histological structure of the digestive system	Histological structure of stomach	Lecture	examinations, slides for mode
Twenty fourth	2	Identify the histological structure of the digestive system	Histological structure of small intestine	Lecture	examinations, slides for mode
Twenty fifth	2	Identify the histological structure of the digestive system	Histological structure of large intestine	Lecture	examinations, slides for mode
Twenty sixth	2	Identify the histological structure of the digestive system	Histological structure of liver	Lecture	examinations, slides for mode
Twenty seventh	2	Identify the histological structure of the digestive system	Histological structure of pancreas	Lecture	examinations, slides for mode

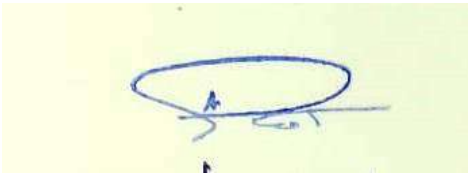
Twenty eighth	2	Identify the histological structure of the Respiratory system	Histological structure of trachea	Lecture	examinations, slides for mode
Twenty nineth	2	Identify the histological structure of the Respiratory system	Histological structure of lung	Lecture	examinations, slides for mode
Thirtieth	2	Identify the histological structure of the Urinary system	Histological structure of kidney	cture	examination slides for mo

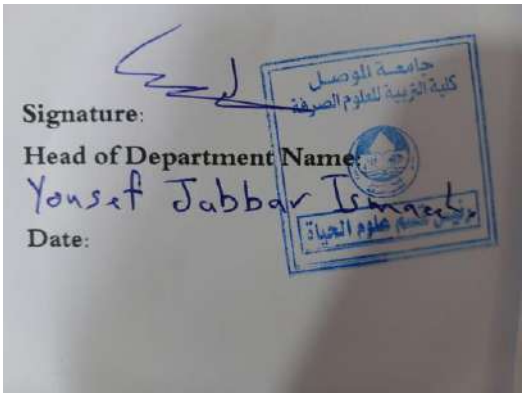
11. Course Evaluation

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)	Genetics. 1989. Saad J. Taj-Aldeen and Abdu lnaaby H. Al-Essa .Ibn alathir Publication house
Main references (sources)	Al- Makhtar K. and Al- Rawi . 2000. Histology, 5th ed. Ibn Al- Atheer Press. Iraq.
Recommended books and references (scientific journals, reports…)	Junqueira's Basic Histology: Text and Atlas . 2019. Mc Graw Hill Higher Education, 8ed , U.S.A. Essential Histology. 2001. Mc Graw Hill Higher Education, 8ed , U.S.A.
Electronic References, Websites	https://histologyguide.com/
Percentage of Curriculum update	25%





Name and Signature

of Curriculum Administrator

Ameer M. Taha

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul, College: Education for Pure Science Department: Biology

1. Course Name and class:

Embryology for the second class

2. Course Code: EDBI25F204

3. Semester / Year:

2024 – 2025

4. Description Preparation Date:

1/09/2024

5. Available Attendance Forms:

Attendance (live lecture) + Google - Classroom

6. Number of Credit Hours (Total) / Number of Units (Total) : 2 hours / week

2/6

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

Name: Dr. Rabeea Hazim Mohammed
Email: dr.rabeeahm@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Providing students with the basic concepts of embryology** • **Students should know the relationship between embryology and other branches** • **Understanding the history of embryology** • **Increase students' knowledge with laboratory skills, including the use of microscopes and methods of fetal diagnosis**

9. Teaching and Learning Strategies

Strategy	Theoretical and practical lectures, dialogue and discussions, conducting practical experiments, daily reports and assignments, direct discussions with students, forming discussion groups among the students themselves

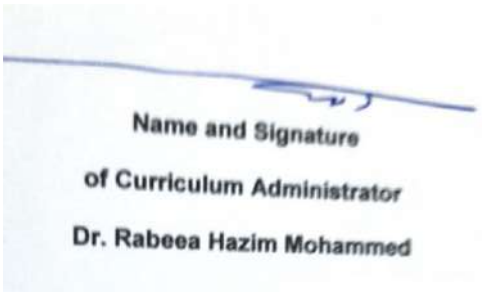
10. Course Structure

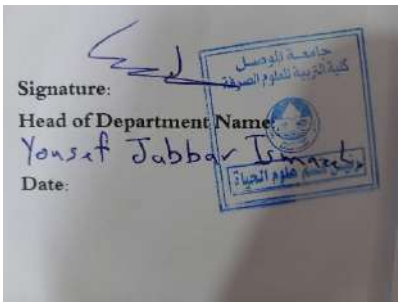
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

First	2	Knowledge And skill	Embryology- historical Background	Lecture	Daily Quiz, report and , homework
Second	2	Knowledge And skill	Special fields in Embryology	Lecture Lecture	Daily Quiz, report and , homework
Third	2	Knowledge And skill	Reproductive organs Gametogenesis	Lecture	Daily Quiz, report and , homework
Fourth	2	Knowledge And skill	Spermatogenesis Oogenesis	Lecture Lecture	Daily Quiz, report and , homework
Fifth	2	Knowledge And skill	Ovulation, Structure of Egg	Lecture Lecture	Daily Quiz, report and , homework
Sixth	2	Knowledge And skill	Sexual cycle and fertilization	Lecture	Daily Quiz, report and , homework
Seventh	2	Knowledge And skill	Fertilization in details	Lecture	Daily Quiz, report and , homework
Eighth	2	Knowledge And skill	Fertilization in Details	Lecture Lecture	Daily Quiz, report and , homework
Ninth	2	Knowledge And skill	Cleavage, Morula and Blastula	Lecture Lecture	Daily Quiz, report and , homework
Tenth	2	Knowledge And skill	Gastrulation and Ger layers	Lecture	Daily Quiz, report and , homework
Eleventh	2	Knowledge And skill	Gastrulation and Ger layers	Lecture Lecture	Daily Quiz, report and , homework
Twelfth	2	Knowledge And skill	Embryology of Amphioxus (early development)	Lecture	Daily Quiz, report and , homework
Thirteen	2	Knowledge And skill		Lecture	Daily Quiz, report and , homework
Fourteenth	2	Knowledge And skill	Embryology of Amphioxus (organogenesis)	Lecture	
Fifteenth	2	Mid term		------	--------
Sixteenth	2	Knowledge	Embryology of	Lecture	

		And skill	Frog (early stages)		Daily Quiz, report and , homework
Seventeenth	2	Knowledge	Frog, blastula and	Lecture	
Eighteenth	2	And skill	gastrulation		
Nineteenth	2	Knowledge And skill	Frog-Organogenesis	Lecture	Daily Quiz, report and , homework
Twentieth	2	Knowledge And skill	Frog, heart formation and Kidney	Lecture	
Twenty first	2	Knowledge And skill	Chick embryonic development	Lecture	Daily Quiz, report and , homework
Twenty Second	2	Knowledge And skill	Primitive streak Stage	Lecture Lecture	Daily Quiz, report and , homework
Twenty third	2	Knowledge And skill	Changes between 16-18 incubation	Lecture	
Twenty fourth	2	Knowledge And skill	Changes between 18-24 incubation	Lecture	Daily Quiz, report and , homework
Twenty fifth	2	Knowledge And skill	Changes between 24-38 incubation	Lecture	Daily Quiz, report and , homework
Twenty sixth	2	Knowledge And skill	Changes between 38-55 incubation	Lecture	Daily Quiz, report and , homework
Twenty seven	2	Knowledge And skill	Changes between 3^{rd} and 4^{th} day of incubation	Lecture	Daily Quiz, report and , homework
Twenty eighth	2	Knowledge And skill	Mammalian development	Lecture	Daily Quiz, report and , homework
Twenty ninth	2	Knowledge And skill	Mammalian development	Lecture	Daily Quiz, report and , homework
Thirty		Final 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)	Atlas of embryology
Main references (sources)	Foundation of Embryology / Brad M. Patten / Bruce M. Carlson Embryology, Kwakib Al-Mukhtar
Recommended books and references (scientific journals, reports...)	Embryology, Kwakib Al-Mukhtar
Electronic References, Websites	Internet
Percentage of Curriculum update	**20%**





Course Description Form

1. Course Name:
Embryology – practical
2. Course Code:
EDBI25F204
3. Semester / Year:
2024 – 2025
4. Description Preparation Date:
1/09/2024
5. Available Attendance Forms:
Attendance (live lecture) + Google - Classroom
6. Number of Credit Hours (Total) / Number of Units (Total) : 6 hours / week
6/6
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Rabeea Hazim Mohammed Email: dr.rabeeahm@uomosul.edu.iq 2- Arwa Address Ahmed 3- Shireen Yaseen Qasim 3- Raghad Ahmed Abbas
8. Course Objectives

Course Objectives	• **Understanding the basic principles of embryology** • **Understanding the practical applications of embryology**

9. Teaching and Learning Strategies

Strategy	Theoretical and practical lectures, dialogue and discussions, conducting practical experiments, daily reports and assignments, direct discussions with students, forming discussion groups among the students themselves

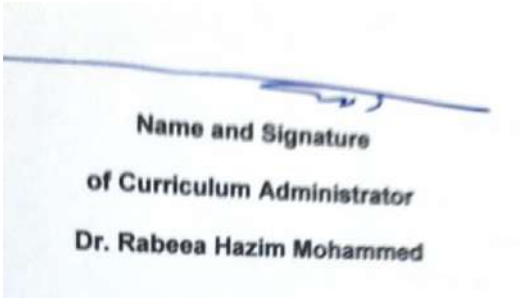
10. Course Structure

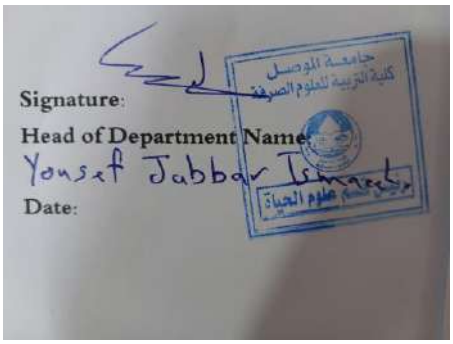
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

First	6	Knowledge And skill	Recognition of embryology	Practical Lecture	Daily Quiz, report and , homework
Second	6	Knowledge And skill	Recognition of Reproductive system	Practical Lecture	Daily Quiz, report and , homework
Third	6	Knowledge And skill	Reproductive organs Gametogenesis	Practical Lecture	Daily Quiz, report and , homework
Fourth	6	Knowledge And skill	Spermatogenesis Oogenesis	Practical Lecture	Daily Quiz, report and , homework
Fifth	6	Knowledge And skill	Fertilization	Practical Lecture	Daily Quiz, report and , homework
Sixth	6	Knowledge And skill	Recognition of Cleavage, Morula and Blastula	Practical Lecture	Daily Quiz, report and , homework
Seventh	6	Knowledge And skill	Recognition of Gastrulation	Practical Lecture	Daily Quiz, report and , homework
Eighth	6	Knowledge And skill	Recognition of Amphioxus	Practical Lecture	Daily Quiz, report and , homework
Ninth	6	Knowledge And skill	Recognition of Embryology of Amphioxus (organogenesis)	Practical Lecture	Daily Quiz, report and , homework
Tenth	6	Knowledge And skill		Practical Lecture	Daily Quiz, report and , homework
Eleventh	6	Knowledge And skill	Recognition of Frog Embryology	Practical Lecture	Daily Quiz, report and , homework
Twelfth	6	Knowledge And skill	Frog, blastula and gastrulation	Practical Lecture	Daily Quiz, report and , homework
Thirteen	6	Knowledge And skill	Frog- Organogenesis	Practical Lecture	Daily Quiz, report and , homework
Fourteenth	6				
Fifteenth		Mid term		------	--------
Sixteenth	6	Knowledge	Recognition of	Practical	

Seventeenth	6	And skill Mid term	Chick embryonic development	Lecture	Daily Quiz, report and , homework
Eighteenth	6	Knowledge And skill	Recognition of Primitive streak Stage	Practical Lecture	Daily Quiz, report and , homework
Nineteenth	6	Knowledge And skill	Recognition of 16 hours incubation	Practical Lecture	---------
Twentieth	6	Knowledge And skill	Recognition of 18 hours incubation	Practical Lecture	Daily Quiz, report and , homework
Twenty first	6	Knowledge And skill	Recognition of 22-24 hours	Practical Lecture	Daily Quiz, report and , homework
Twenty Second	6	Knowledge And skill	Recognition of 33 h incubation	Practical Lecture	Daily Quiz, report and , homework
Twenty third	6	Knowledge And skill	Recognition of 48 h incubation	Practical Lecture	Daily Quiz, report and , homework
Twenty fourth	6	Knowledge And skill	Recognition of 72 h incubation	Practical Lecture	Daily Quiz, report and , homework
Twenty fifth	6	Knowledge And skill	Recognition of 96 h incubation	Practical Lecture	Daily Quiz, report and , homework
Twenty sixth	6	Knowledge And skill	Recognition of Twins	Practical Lecture	Daily Quiz, report and , homework
Twenty seven	6	Knowledge And skill	Recognition of Congenital malformation	Practical Lecture	Daily Quiz, report and , homework
Twenty eighth	6	Knowledge And skill	Feedback	Practical Lecture	Daily Quiz, report and , homework
Twenty ninth	6	Knowledge And skill	Feedback	Practical Lecture	
Thirty		Final 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)	
Main references (sources)	Embryology, Kwakib Al-Mukhtar
Recommended books and references (scientific journals, reports...)	Embryology, Kwakib Al-Mukhtar
Electronic References, Websites	Internet
Percentage of Curriculum update	15%





Course Description Form

University : Mosul University College: Faculty of Education for Pure Sciences Department or Branch : Department of Biology

1. Course Name: Invertebrates

2. Course Code: **EDBI25F201**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

4 hours/4 hours

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

Name: Assistant Prof. Safaa Mohammed Mahmood
mohamedsafaa213@uomosul.edu.iq

8. Course Objectives

Course Objectives	

9. Teaching and Learning Strategies

Strategy	Practical and t • Identify the basic principles of invertebrate science • Learn about practical applications of invertebrate animal models heoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation

					method
first	2	Introduction to invertebrates, an overview of the importance of the role of scientists in the evolution of invertebrates	The importance of invertebrates And its relationship withother organisms	Blackboard, presentation and vid lectures	quizzes
Second	2	Object recognition amoeba	The world of protists features of protists, classification of protists, shapes of protists, the nucleus protists, movement organelles, nutrition gaps	Blackboard, presentat and video lectures	quizzes
Third	2	Object recognition Volvix, Trypanosoma, Giardia	contracting vacuoles reproduction in primary and its type colony formation, models of primary, Volvix, Trypanosom Giardia	Blackboard, presentation and vid lectures	quizzes
Fourth	2	Recognition Class of amoebiasis	Classification of polyp amoebiasis, shape and s nutrition in amoebiasis its methods (solidificat and compaction), digest in amoebiasis	Blackboard, presentation and video lectures	Quiz, report , homework
Fifth	2	Object recognition Shape and size	Trypanosoma, Giardia	Blackboard, presentation and video lectures	Homework
Sixth	2	Understand the basic principles	Class of ciliates, paramecium size and shape, cilia and nucleus, contractile vacuole, nutrition, osmoregulation, reproduction in paramecium, cross-fertilization and conjugation, class of sporozoa, Monocystis parasite, life cycle, importance of protozoa, benefits and harms	Blackboard, presentation and video lectures	Quiz, report , homework
Seventh	2	Understanding the basic principles while identifying the basis of classification	Phylum of porosities, features, classification, types of spines in porosities, on the basis of which the classification was made.	Blackboard, presentation and video lectures	Homework

Eighth	2	Identify the organism Leucosolina, and understand its basic principles	Types of cells in the pores with drawings, structure of the body wall in the pores, canal systems, variation in the pores, reproduction in the pores, the relationship of the pores with other animals, the importance of the pores	Blackboard, presentation and video lectures	Quiz, report , homew ork
Nineth	2	Hydra organism identification and classification to the phylum	Cnidaria phylum, classification, features, Hydra and its types, structure of the body wall in Hydra, types of non-cnidarian cells, reproduction in Hydra, aspects of life in Hydra, immortality and survival in Hydra.	Blackboard, presentation and video lectures	Homew ork
Tenth	2	Identify the object Obelia	Obelia, structure of the body wall, reproduction in obelia, the life cycle of obelia, comparison between obelia and polyps, the differences between them.	Blackboard, presentation and vic lectures	Quiz, rep , homewo
Eleventh	2	Identify the anemo Metridium organism	Class of pansies, anemones Metridiu movement, nutritio stony corals A. The importance of cnidarians, benefits a harms	Blackboard, presentation and vic lectures	Quiz, rep , homewo
Twelfth	2	Identify the Planaria organism, , hepatic worm Taenia solium worm	Triphyletic animals, Acoelomata, phylum of flatworms, classification, features, planaria, body wall in planaria, benefits of parenchyma cells, digestive system, nervous system, sexual reproduction and its organs and asexual, reproductive, grafting, and	Blackboard, presentation and video lectures	Homewo rk

			starvation in planaria.		
Thirteen	2	Object recognition Ascaris	Phylum Ascohelminthes Features classification Ascaris model	Blackboard, presentation and vid lectures	Quiz, and homew ork
Fourteenth	2	Identify the basic principles	Phylum Annelidae Nereis model	Blackboard, presentation and video lectures	Homewo rk
Fifteenth	1	Exam			
Sixteenth	2	Object recognition	earthworm model Hirudo medicinalis model Aphrodite model	Blackboard, presentation and video lectures	Quiz, report , homew ork
Seventeenth	2	Object recognition	Phylum Arthropoda Features and classification Astacus	Blackboard, presentation and video lectures	Quizze
Eighteenth	2	Recognizing the basic principles in addition to identifying the object	Phylum Arthropoda (Cipedes) Scolopendra animal Mother forty-four	Blackboard, presentation and video lectures	Quiz, and homew ork
Nineteenth	2	Recognizing the basic principles in addition to identifying the object	Phylum Arthropoda (millipedes) Solomon's ring Julus	Blackboard, presentation and video lectures	Quizze s
Twentieth	2	Recognizing the basic principles in addition to identifying the object	Phylum Arthropoda Limulus model	Blackboard, presentation and video lectures	homew ork
Twenty first	2	Recognizing the principles the basic	Buthus model and Speder model	Blackboard, presentation and video lectures	Quiz
Twenty second	2	Object recognition	Lepas model goose barnacle, Balanus rock barnacle	Blackboard, presentation and video lectures	homewor k
Twenty third	2	Object recognition	Phylum Mullusca	Blackboard, presentation and video lectures	Quiz
Twenty fourth	2	Object recognition	Helix structure, classification and life	Blackboard, presentation and video lectures	homewo rk
Twenty fifth	2	Object recognition	Octopus animal Its structure, classification and life Sepia animal	Blackboard, presentation and video lectures	Quiz

			Its structure, classification and life		
Twenty sixth	2	Object recognition	Sea dollar	Blackboard, presentation and video lectures	homework
Twenty seventh	2	Understand the basic principles	Phylum Echinodermata Features, classification and models	Blackboard, presentation and video lectures	Quiz
Twenty eighth	2	Object recognition	Echinodermata Starfish and brittle star And comparison between them	Blackboard, presentation and video lectures	Quiz
Twenty nineth	2	Object recognition	Echinodermata Classify cucumbers and model sea cucumbers	Blackboard, presentation and video lectures	Quiz
Thirtieth	1	Exam			

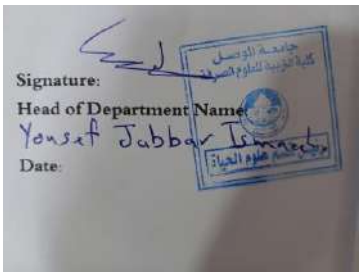
11. Course Evaluation

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)	Invertebrate science - Dr. Zuhair Al-Sharouk, Dr. Najm Shlimoun
Main references (sources)	nvertebrate science - Dr. Murad Baba Murad
Recommended books and references (scientific journals, reports…)	Invertebrate zoology,2019
Electronic References, Websites	https://library.si.edu/research/invertebrate-zoology/
Percentage of curriculum update	5%

Name and Signature
of curriculum administrator :
Safaa Mohammed Mahmood



Course Description Form

University: Mosul University College: College of Education of Pure Science
Department or Branch: Biology Department

1. Course Name and Stage: Practical invertebrates\ Stage 2nd
2. Course Code: **EDBI25F201**
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory, Classroom
6. Number of Credit Hours (Total) / Number of Units (Total): 2/4
7. Course administrator's name (mention all, if more than one name) and Scientific title
Name: Name: Assistant Prof. Safaa Mohammed Mahmood Email: mohamedsafaa213@uomosul.edu.iq Lecturer Tamara Waleed Jihad Email: waleed.tamara@yahoo.com
8. Course Objectives

Subject Objectives	• Knowing the basic principles of invertebrate animals • Knowing the practical applications of invertebrate animals

9. Teaching and Learning Strategies

Strategy	• Practical and to identify the basic principles of invertebrate Science. • Learn about practical applications of invertebrate animal models through theoretical lectures, talks, and discussions, problem-solving, performing practical experiments, reports, and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Introduction to invertebrates, an overview of the importance of the role of scientists in the evolution of invertebrates	The importance of invertebrates And its relationship withother organisms	Blackboard, presentation and vid lectures	quizzes
Second	2	Object recognition amoeba	The world of protists, features protists, classification of protists, shapes protists, the nucleus in protists, moveme organelles, nutritional gaps	Blackboard, presentation and vid lectures	quizzes
Third	2	Object recognition Volvix, Trypanosoma, Giardia	contracting vacuoles, reproduction in primary and its types, colon formation, models of primary, Volvix, Trypanosoma, Giardia	Blackboard, presentation and video lectures	quizzes
Fourth	2	Recognition Class of amoebiasis	Classification of polyps, amoebia shape and size, nutrition in amoebiasis and its methods (solidification and compaction) digestion in amoebiasis	Blackboard, presentation and video lectures	Quiz, report , homework
Fifth	2	Object recognition Shape and size	Trypanosoma, Giardia	Blackboard, presentation and video lectures	Homework
Sixth	2	Understand the basic principles	Class of ciliates, paramecium size and shape, cilia and nucleus, contractile	Blackboard, presentation and video lectures	Quiz, report , homework

			vacuole, nutrition, osmoregulation, reproduction in paramecium, cross-fertilization and conjugation, class of sporozoa, Monocystis parasite, life cycle, importance of protozoa, benefits and harms		
Seventh	2	Understanding the basic principles while identifying the basis of classification	Phylum of porosities, features, classification, types of spines in porosities, on the basis of which the classification was made.	Blackboard, presentation and video lectures	Homework
Eighth	2	Identify the organism Leucosolina, and understand its basic principles	Types of cells in the pores with drawings, structure of the body wall in the pores, canal systems, variation in the pores, reproduction in the pores, the relationship of the pores with other animals, the importance of the pores	Blackboard, presentation and video lectures	Quiz, report , homework
Nineth	2	Hydra organism identification and classification to the phylum	Cnidaria phylum, classification, features, Hydra and its types, structure of the body wall in Hydra, types of non-cnidarian cells, reproduction in Hydra, aspects of life in Hydra, immortality and	Blackboard, presentation and video lectures	Homework

			survival in Hydra.		
Tenth	2	Identify the object Obelia	Obelia, structure of the body wall, reproduction in obelia, the life cycle of obelia, comparison between obelia and polyps, the differences between them.	Blackboard, presentation and vid lectures	Quiz, report homework
Eleventh	2	Identify the anemor Metridium organisr	Class of pansies anemones Metridiu movement, nutriti stony corals A. T importance of cnidarians, benefi and harms	Blackboard, presentation and vid lectures	Quiz, report homework
Twelfth	2	Identify the Planaria organism, , hepatic worm Taenia solium worm	Triphyletic animals, Acoelomata, phylum of flatworms, classification, features, planaria, body wall in planaria, benefits of parenchyma cells, digestive system, nervous system, sexual reproduction and its organs and asexual, reproductive, grafting, and starvation in planaria.	Blackboard, presentation and video lectures	Homework
Thirteen	2	Object recognition Ascaris	Phylum Ascohelminthes Features classification Ascaris model	Blackboard, presentat and video lectures	Quiz, and homework
Fourteenth	2	Identify the basic principles	Phylum Annelidae Nereis model	Blackboard, presentation and video lectures	Homework
Fifteenth	1	Exam			

Sixteenth	2	Object recognition	earthworm model Hirudo medicinalis model Aphrodite model	Blackboard, presentation and video lectures	Quiz, report , homework
Seventeenth	2	Object recognition	Phylum Arthropoda Features and classification Astacus	Blackboard, presentation and video lectures	Quizzes
Eighteenth	2	Recognizing the basic principles in addition to identifying the object	Phylum Arthropoda (Cipedes) Scolopendra animal Mother forty-four	Blackboard, presentation and video lectures	Quiz, and homework
Nineteenth	2	Recognizing the basic principles in addition to identifying the object	Phylum Arthropoda (millipedes) Solomon's ring Julus	Blackboard, presentation and video lectures	Quizzes
Twentieth	2	Recognizing the basic principles in addition to identifying the object	Phylum Arthropoda Limulus model	Blackboard, presentation and video lectures	homework
Twenty first	2	Recognizing the principles the basic	Buthus model and Speder model	Blackboard, presentation and video lectures	Quiz
Twenty second	2	Object recognition	Lepas model goose barnacle, Balanus rock barnacle	Blackboard, presentation and video lectures	homework
Twenty thir	2	Object recognition	Phylum Mullusca	Blackboard, presentation and video lectures	Quiz
Twenty fourth	2	Object recognition	Helix structure, classification and life	Blackboard, presentation and video lectures	homework
Twenty fifth	2	Object recognition	Octopus animal Its structure, classification and life Sepia animal Its structure, classification and life	Blackboard, presentation and video lectures	Quiz
Twenty sixth	2	Object recognition	Sea dollar	Blackboard, presentation and video lectures	homework

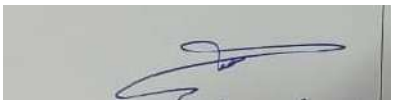
Twenty seventh	2	Understand the basic principles	Phylum Echinodermata Features, classification and models	Blackboard, presentation and video lectures	Quiz
Twenty eighth	2	Object recognition	Echinodermata Starfish and brittle star And comparison between them	Blackboard, presentation and video lectures	Quiz
Twenty nineth	2	Object recognition	Echinodermata Classify cucumbers and model sea cucumbers	Blackboard, presentation and video lectures	Quiz
Thirtieth	1	Exam			

11. Course Evaluation and Marks

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)	Invertebrate science - Dr. Zuhair Al-Sharouk, Dr. Na Shlimoun
Main references (sources)	invertebrate science - Dr. Murad Baba Murad
Recommended books and references (scientific journals, reports…)	Invertebrate zoology,2019
Electronic References, Websites	https://library.si.edu/research/invertebrate-zoology/
Percentage of Curriculum update	5%



Name and Signature

of Curriculum Administrator

Lecturer. Tamara Waleed Jihad

Name and Signature

of Department or Branch Head

Prof. Yousif Jabbar Ismail

Course Description Form

University of Mosul

College: Education for Pure Science (uomosul.edu.iq)

Department or Branch: Chemistry/ Biochemistry

1. Course Name: Biochemistry

2. Course Code: **EDBI24M205**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 3/9/2024

5. Available Attendance Forms: Presentation theory lecture , Classroom attendance

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

Total (60) / 2 Units

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

Name: Lecturer. Dr. Rana Talib Ibrahim
Email: altaee.rana1979@uomosul.edu.iq

Lecturer: Dr. Naufel Sheet Mohammed
Email: nawfelsheet76@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of Biochemistry And its branches and biomolecules like Carbohydrates, lipids, proteins, enzyme .....** • **Knowing of their vital role and their relationship To human health**

9. Teaching and Learning Strategies

Strategy	**Theoretical lecture, talk and discussions, problem solving, performing practical experiments, reports and homework**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1+2	4 =2×2	Knowing the importance of biochemistry, cell types and their component	The cell and its component	Lecture	Lecture, discussi With student
3+4	4=2×2	Knowing the properties of water and buffer solution	Water and buffer Solution	Lecture	Lecture, discussi With student, Quiz
5+6+7+8	8=4×2	Knowing types of Carbohydrates and its reactions	Carbohydrates	Lecture	Lecture, discussi With student
9+10+ +11+12	8=4×2	Understanding lipids and its reactions	Lipids, classification and types	Lecture	Lecture, discussi With student Quiz
12+14+ 15+16	8=4×2	Amino acids and peptides	Amino Acid, classification, reaction, peptides	Lecture	Lecture, discussi With student
17+18+ 19+20	8=4×2	Proteins	Protein, solubility, Hydrolysis, Reactions	Lecture	Lecture, discussi With student Quiz
21+22 +23	6=3×2	Chromatography	Knowing the basic principle of Chromatography	Lecture	Lecture, discussi With student
24+25 26	6=3×2	Enzymes	Enzyme, Types, Enzyme nomenclature Factors affecting the rate of enzymatic reactions	Lecture	Lecture, discussi With student
27+28	4=2×2	Vitamins and coenzyme and its vital role and relationship to diseases	Vitamins and, coenzyme	Lecture	Lecture, discussi With student Quiz
29+30	4=2×2	Understanding the basic principles of nucleic acids	Nucleotides and nucleic acids	Lecture	Lecture, discussi With student
31	1	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	Introduction to biochemistry (2007). khawla Al-flaeyh
Main references (sources)	Lippincott's biochemistry (2019) Richard Harvey & Denis Ferrier ., 5th.
Recommended books and references (scientific journals, reports...)	Sami El-Modifier (2002) principle of biochemistry
Electronic References, Websites	https://faculty.uobasrah.edu.iq
Curriculum update	No more

Name and Signature of

Curriculum Administrator

Lec.Dr.Rana Talib Ibrahim

Course Description Form

University: University of Mosul
College: College of Education for Pure Sciences
Department or Branch: Biology

1. Course Name and Stage:

Plant taxonomy\ Second stage

2. Course Code:

EDBI25F202

3. Semester / Year:

2024−2025

4. Description Preparation Date:

1\9\2024

5. Available Attendance Forms:

Laboratory , Classroom

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

2/2

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

Name: Asst. Prof. Dr. Muna Omar Mohammed Shehab
Email: muna.omar@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• Knowing the basic principles of plant taxonomy • Knowing the plant families and how to diagnose them

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solvin performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Taxonomy ,its definition ,importance,diagnosis of plant,methods used in diagnosis methods	Taxonomy ,its definition ,importance,diagnosis of plant,methods used in diagnosis methods	Lecture	quizzes
Second	2	The relationship of taxonomy of other sciences	The relationship of taxonomy of other sciences	Lecture	quizzes
Third	2	History of plant taxonomy	History of plant taxonomy	Lecture	quizzes
Fourth	2	Foundation of classification the concept of species-classification ranks	Foundation of classification the concept of species-classification ranks	Lecture	Quiz,
Fifth	2	Basis of classification:morphological,anatomical, and cellular	Basis of classification:morphological,anatomical, and cellular	Lecture	quiz
Sixth	2	Chemical foundations,numerical foundations,plant fossils	Chemical foundations,numerical foundations,plant fossils	Lecture	quiz

Seventh	2	Major and minor categories	Major and minor categories	Lecture	Quiz
Eighth	2	System of classification,artificial,natural,phylogenetic systems	System of classification,artificial,natural,phylogenetic systems	Lecture	Quiz
Nineth	2	Nomenclature,vernacular (common names),polynomial	Nomenclature,vernacular (common names),polynomial	Lecture	quiz
Tenth	2	Scientific nomenclature,generic name,specific	Scientific nomenclature,generic name,specific	Lecture	Quiz
Eleventh	2	Naming rules	Naming rules	Lecture	Quiz
Twelfth	2	Botanical names,prefixes,suffixes	Botanical names,prefixes,suffixes	Lecture	quiz
Thirteen	2	Specific epithets	Specific epithets	Lecture	quiz
Fourteenth	2	Evolutionary trends in seed plants	Evolutionary trends in seed plants	Lecture	Quiz
Fifteenth	1	Exam			
Sixteenth	2	Evidence for theories of evolution	Evidence for theories of evolution	lecture	Quiz
Seventeenth	2	Evolutionary trends and principles relating to flowers and angiosperms	Evolutionary trends and principles relating to flowers and angiosperms	lecture	Quizzes
Eighteenth	2	Pollen grains,their origin,shapes,sizes,and distribution	Pollen grains,their origin,shapes,sizes,and distribution	Lecture	Quiz
Nineteenth	2	Cross pollination,self pollination,pollination methods	Cross pollination,self pollination,pollination methods	Lecture	Quizzes
Twentieth	2	Seed plants,their definition and characteristics	Seed plants,their definition and characteristics	Lecture	quiz
Twenty first	2	Gymnosperms-angiosperms	Gymnosperms-angiosperms	Lecture	Quiz
Twenty second	2	Identify the families of gymnosperms,pinaceae,cupressaceae	Identify the families of gymnosperms,pinaceae,cupressaceae	lecture	quiz
Twenty third	2	Identify the families of angiosperms,monocotyledons	Identify the families of angiosperms,monocotyledons	Lecture	Quiz
Twenty fourth	2	Gramineae, Amaryllidaceae	Gramineae, Amaryllidaceae	Lecture	homework
Twenty fifth	2	Cyperaceae,liliaceae	Cyperaceae,liliaceae	lecture	Quiz
Twenty sixth	2	Identify the families of angiosperms,dicotyledons	Identify the families of angiosperms,dicotyledons	lecture	quiz
Twenty seventh	2	Rutaceae,compositae	Rutaceae,compositae	Lecture	Quiz
Twenty eighth	2	Cruciferae,Ranuculaceae	Cruciferae,Ranuculaceae	lecture	Quiz
Twenty nineth	2	Solanaceae,papaveraceae	Solanaceae,papaveraceae	Lecture	Quiz
Thirtieth	1	Exam			

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, ... etc	
Learning and Teaching Resources	
Classification of seed plants	Youssef Mansour ALkateb , 2000
Plant taxonomy	Ali Hussein almoussawi ,1987
Taxonomy of angiosperms B.P.Pandey 2009	B.P.Pandey 2009
https://mawdoo3.com	https://mawdoo3.com
Percentage of Curriculum update	

Name and Signature

of Curriculum Administrator

Asst. Prof. Dr. Muna Omar Mohammed Shehab

Name and Signature

of Department or Branch Head

Course Description Form

1. Course Name/ Stage: Practical Plant taxonomy/ Second Stage

2. Course Code: **EDBI25F202**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

2/2

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

Dr. Muna Omar Mohammed Shehab
muna.omar@uomosul.edu.iq. Dr.Hanan amier Abdulla
Hananaabdulla@uomosul.edu.iq. Dr. Noor Nabeel yhya ALtalib
Noor.nabeel@uomosul .edu.iq. zubaida mahmmod sallh
Zubiada.altayi@uomosul.edu.iq.
Hiba Ammar

8. Course Objectives

Course Objectives	**• Knowing the basic principles of pl taxonomy** **• Knowing the plant families and h to diagnose them**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Collction and preserving plant spcimen	Collction and preserving plant spcimen	Lecture	quizzes
Secon	2	Vegetative parts,desecrption root	Vegetative parts,desecrpti root	Lecture	quizzes
Third	2	stem	Stem	Lecture	quizzes
Fourt	2	buds	buds	Lecture	Quiz,
Fifth	2	Leaves,leaf parts,shape,apex,base,margin,venation	Leaves,leaf parts,shape,apex, base,margin,venation	Lecture	quiz
Sixth	2	Stipules and visture	Stipules and visture	Lecture	quiz
Seventh	2	Modification of leaves	Modification of leaves	Lecture	Quiz
Eighth	2	phyllotaxy	phyllotaxy	Lecture	Quiz
Nineth	2	Flower,flower parts, calyx	Flower,flower parts,calyx	Lecture	quiz
Tenth	2	Corolla,shape,modification	Corolla,shape,modification	Lecture	Quiz
Eleventh	2	Aestivation,shape	Aestivation,shape	Lecture	Quiz
Twelfth	2	Bracts and stamens	Bracts and stamens	Lecture	quiz
Thirteen	2	Pistil shape	Pistil shape	Lecture	quiz
Fourteenth	2	placentation	placentation	Lecture	Quiz
Fifteenth	1	Exam			
Sixteenth	2	Position of ovary	Position of ovary	lecture	Quiz
Seventeenth	2	Nectaries glands	Nectaries glands	lecture	Quizzes
Eighteenth	2	inflorescences	inflorescences	Lecture	Quiz
Nineteenth	2	racemose	racemose	Lecture	Quizzes
Twentieth	2	cymose	cymose	Lecture	quiz

Twenty first	2	Fruits,types of fruits,simple fruits	Fruits,types of fruits,simple fruits	Lecture	Quiz
Twenty second	2	Aggregate fruits	Aggregate fruits	ecture	quiz
Twenty third	2	Seed,parts of seed	Seed,parts of seed	Lecture	Quiz
Twenty fourth	2	Practical applications	Problem solving	Problem solving	homework
Twenty fifth	2	Surface configuration	Surface configuration	lecture	Quiz
Twenty sixth	2	Floral formula	Floral formula	lecture	quiz
Twenty seventh	2	Floral diagram	Floral diagram	Lecture	Quiz
Twenty eighth	2	Training students on writing the floral formula and drawing the floral diagram of plants of monocotyledons and dicotyledons families	Training students on writing the floral formula and drawing the floral diagram of plants of monocotyledons and dicotyledons families	lecture	Quiz
Twenty nineth	2	Training students to use the key in classifying families of angiosperms and monocots,dicots	Training students to use the key in classifying families of angiosperms and monocots,dicots	Lecture	Quiz
Thirtie	1	Exam			

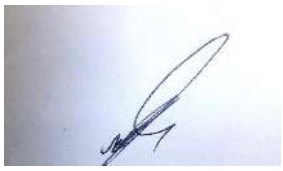
11. Course Evaluation

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

12. Learning and Teaching Resources

Classification of seed plants	Youssef Mansour ALkateb , 2000
Plant taxonomy	Ali Hussein almoussawi ,1987
Taxonomy of angiosperms B.P.Pandey 2009	B.P.Pandey 2009

https://mawdoo3.com	https://mawdoo3.com
Percentage of curriculum update	



Name and Signature

of Department or Branch Head

Assist. Pro. Dr Muna Omar Mohammed

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: College of Education for Pure Sciences
Department or Branch: Biology

1. Course Name and Stage: Developmental psychology / Stage : Second

2. Course Code: **EDBI25F208**

3. Semester / Year: 2024 - 2025

4. Description Preparation Date: 1 / 9 / 2024

5. Available Attendance Forms: In-person - electronic class

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

2 hours / 4 units

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

Name: Assist. Ahmed Adeeb Qanbar Shehab
Email : ahmed.adeeb@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• **Identify the basic concepts of developmental psychology.** • **Learn about the principles and laws of growth.** • **Identify the importance of adolescence childhood in human life. .** • **Identify growth theories.**

9. Teaching and Learning Strategies

Strategy	Theoretical and practical lectures, dialogue and discussions, brainstorming, problem solving, conducting practical experiments, reports and daily assignments.

10. Course Structure

Week	Hours	Required Learning Outcomes	First	Learning method	Evaluation method

First	**2 hours**	**For the student to know the concepts of psychology, developmental psychology and its origins.**	**Introduction to psychology and developmental psychology.**	**Lecture and discussion**	**Quizzes**
Second	**2 hours**	**The student explains the laws and principles of growth and their importance.**	**Principles and laws of growth and the importance of growth.**	**Lecture and discussion**	**Quizzes**
Third	**2 hours**	**The student identifies the stages of human development.**	**Stages of human development (childhood).**	**Lecture and discussion**	**Quizzes**
Fourth	**2 hours**	**For the student to understand the importance and demands of adolescence in a person's life.**	**Adolescence: its definition, importance and stages.**	**Lecture and discussion**	**Quizzes**
Fifth	**2 hours**	**The student should know the stage of adulthood and the demands of growth in adulthood.**	**Adulthood and the stages and demands of growth in adulthood.**	**Lecture and discussion**	**Homework**
Sixth	**2 hours**	**The student should understand the role of influencing growth.**	**Factors affecting growth: First: genetic factors.**	**Lecture and discussion**	**Quizzes and Homework**
Seventh	**2 hours**	**The student should understand the influential role of environmental factors on growth.**	**Factors affecting growth: Second: Environmental factors.**	**Lecture and discussion And solve problems**	**Homework**
Eighth	**2 hours**	**The student should understand the role of the influencer of the glands on growth.**	**Factors affecting growth: Third: Glands.**	**Lecture and discussion**	**Quizzes**
Ninth	**2 hours**	**The student should understand the role of information collection methods in collecting information.**	**Means of collecting information (observation – interview – questionnaire – CV).**	**Lecture and brainstorming**	**Quizzes**

Tenth	2 hours	The student should distinguish between research methods in developmental psychology.	Research methods in developmental psychology (longitudinal – transverse – correlation – experimental).	Lecture and discussion	Quizzes and Homework
Eleventh	2 hours	The student should know the social and emotional development of the child.	Social–emotional development in childhood.	Lecture and discussion	Quizzes and Homework
Twelve	2 hours	The student should determine the child's mental and linguistic development.	Mental and linguistic development in the child.	Lecture, discussion and problem solving	Homework
Thirteenth	2 hours	The student should understand how the child's moral development develops.	Congenital development in the child.	Lecture	Quizzes and Homework
Fourteenth	2 hours	The student should understand the role of psychological development in the child and adolescent.	Psychological development in the student and adolescent.	Lecture, discussion, problem solving	Homework
Fifteenth	An hour and a half		Semester exam		
Sixteenth	2 hours	The student should understand the role of social institutions in the socialization of the child.	The role of social institutions in the socialization of the child (family – school).	Lecture and discussion	Quizzes and Homework
Seventee	2 hours	The student should	The role of social	Lecture and	Quizzes

nth		understand the role of social institutions in the socialization of the child.	institutions in the socialization of the child (peers – media).	discussion	
Eighteenth	2 hours	The student should explain the role of social institutions in adolescence.	Adolescence, family and school.	Lecture and discussion	Quizzes and Homework.
Nineteenth	2 hours	The student should explain the role of social institutions in adolescence.	Adolescence, peers and the media.	Lecture and discussion	Quizzes
Twentieth	2 hours	The student should understand the importance of work in the life of the adolescent.	Adolescent and profession.	Lecture and discussion	Homework
Twenty-first	2 hours	The student should understand the importance of adolescent compatibility for work.	Teen compatibility for work.	Lecture and discussion	Quizzes
Twenty-second	2 hours	The student should distinguish between the attitudes and tendencies of adolescents.	Trends and tendencies in adolescents.	Lecture, discussion, problem solving	Homework
Twenty-third	2 hours	The student should identify the sources of acquisition of trends and tendencies.	Sources of acquisition of tendencies and trends.	Lecture, discussion	Quizzes
Twenty-fourth	2 hours	The student should clarify the factors affecting the attitudes and tendencies of	Factors affecting the attitudes and tendencies of adolescents.	Lecture, discussion, problem solving	Homework

		adolescents.			
Twenty–fifth	**2 hours**	**The student should understand the reasons for academic delay in adolescents.**	**Academic delay in the adolescent.**	**Lecture, discussion**	**Quizzes**
Twenty–sixth	**2 hours**	**The student should understand the causes of aggressive behavior in the adolescent.**	**Aggressive behavior in a teenager.**	**Lecture, discussion, problem solving.**	**Homework**
Twenty–seventh	**2 hours**	**The student should understand the causes of adolescent delinquency.**	**Adolescent delinquency**	**Lecture, discussion**	**Quizzes**
Twenty–eighth	**2 hours**	**The student should understand how to congenital development in adolescents.**	**Congenital – cognitive – mental development**	**Lecture, discussion**	**Quizzes**
Twenty–ninth	**2 hours**	**The student should demonstrate the psychosocial development of the adolescent.**	**Psychosocial development**	**Lecture, discussion**	**Quizzes**
Thirtieth	**2 hours**		**Semester exam**		

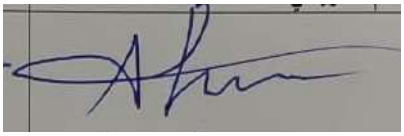
11. Course Evaluation and Marks

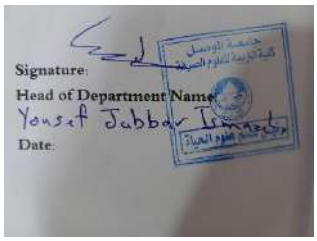
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	hildhood and Adolescence Psychology, Al-Alusi, nal Hussein (1983) Al-Asimah - University of ghdad. volutionary Psychology, Arifj, Sami (1993) rdan - Amman - Dar Majdalawi.
Main references (sources)	Evolutionary Psychology References.
Recommended books and references	- Introduction to Developmental Psychology, Alwan, Fadia (2003) Cairo -

(scientific journals, reports…)	Arab Book House Library. - The psychology of growth - Annabi, Hanan Abdel Hamid (2003). - Developmental Psychology - From Childhood to Old Age - Parasite, Zainuddin Compliance (2004).
Electronic References, Websites	
Percentage of Curriculum update	





Name and Signature

of Curriculum Administrator

Assist.Lec. Ahmed Adeeb Kanbar

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College : Education for Pure Science
Department : Biology

1. Course Name/ Stage: Statistics/ 2nd Stage
2. Course Code: **EDBI25F209**
3. Semester / Year: 2025−2024
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Lecture , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hrs/ 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Farah Adul-Ghane Younis Email: Farah-abd-ul-Ghane@uomosul.edu.iq
8. Course Objectives

Course Objectives	• **Knowing the principles of Statistics** • **Knowing basic principles and statistical laws of Statistics**
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, reports and quizzes

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

first	3	Knowing statistics	Types of statistics: Descriptive and inferential statistics	Lecture	Quizzes and student discussion
Second	3	Basic principles of statistics	Basics of statistics	Lecture	Quizzes
Third	3	Random variables	Types of random variables	Lecture	Quizzes
Fourth	3	Statistical symbols	Characteristics of Statistical symbols	Lecture	Quiz and homework
Fifth	3	Types of presentation of data	Presenting data in tables	Lecture	homework
Sixth	3	First : table presentation of data	How to create Frequency distribution table	Lecture	Quizzes
Seventh	3	Types of frequency distributions	1- Relative frequency distribution 2- Ascending cumulative frequency 3- Descending cumulative frequency	Lecture	homework
Eighth	3	Engineering presentation of data	Types of engineering presentation of data	Lecture	Quiz and homework
Nineth	3	Bar charts	1-How to draw single bars 2- How to draw compound bars	Lecture	homework
Tenth	3	2-Pie chart	How to draw pie chart	Lecture	Quiz and homework
Eleventh	3	histogram and polygon	1-How to draw histogram 2- how to draw polygon	Lecture	Quiz and homework
Twelfth	3	Measures of central tendency	Types of central tendency	Lecture	homework
Thirteen	3	Average or medium	1- In case of tabulated data 2- in case of non-tabulated data	Lecture	homework
Fourteenth	3	Median	1- In case of tabulated data 2-in case of non-tabulated data	Lecture	homework
Fifteenth	3	Mode	1- In case of tabulated data 2-in case of non-tabulated data	Lecture	Quiz

Sixteenth	3	Harmonic mean	1- In case of tabulated data 2-in case of non-tabulated data	Lecture	Quiz and homework
Seventeenth	3	Square mean	2- In case of tabulated data 2-in case of non-tabulated data	Lecture	Quiz
Eighteenth	3	Measures of dispersion	Concept of dispersion and purpose of calculation	Lecture	Quiz and homework
Nineteenth	3	First: Types of dispersion measures 1-Range	In case of tabulated data 2-in case of non-tabulated data	Lecture	Quiz
Twentieth	3	2-average deviation	1-In case of tabulated data 2-in case of non-tabulated data	Lecture	Quiz and homework
Twenty first	3	3-Variance and standard deviation	In case of tabulated data 2-in case of non-tabulated data	Lecture	Quizzes and student discussion
Twenty second	3	Second: relative dispersion measures	Coefficient of variance	Lecture	Quizzes and student discussion
Twenty third	3	Standard error	How to calculate standard error and studying the characteristics of standard error	Lecture	Quizzes and student discussion
Twenty fourth	3	Testing hypothesis	Basics of Testing hypothesis	Lecture	Quiz and homework
Twenty fifth	3	Test of random sample medium in normal population 1- Z-test	Testing hypothesis and drawing	Lecture	Quizzes and student interaction
Twenty sixth	3	2-T-test	Testing hypothesis and drawing	Lecture	Quizzes and student discussion
Twenty seventh	3	3- test with variation of normal population chi test	Testing hypothesis and drawing	Lecture	Quizzes and student interaction
Twenty eighth	3	Test of Equality of two variables	Testing hypothesis and drawing	Lecture	Quizzes
Twenty nineth	3	Identifying basic concepts of probability	Basics of probablities	Lecture	Quizzes

Thirtieth	1		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

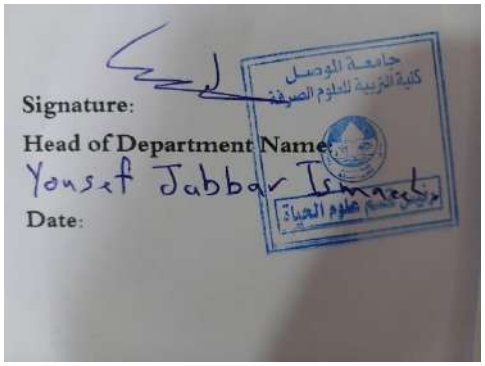
12. Learning and Teaching Resources

Required textbooks (curric books, if any)	rinciples of statistics . Al-mashhadany M. and Hemiz A. H.In arabic Introduction to statistics. Khashaa Al-Rwai- Arabic
Main references (sources)	1-AIIan G.Bluman , Elementary Statistics-A Stepby Step Approach 2-PRM S. MANN , INTRODUCTORY STATICS 3-Stephen Kokoska , introductory Statistics
Recommended books and references (scientific journals, reports…)	https://muqdadedu.uodiyala.edu.
Electronic References, Websites	1-AIIan G.Bluman , Elementary Statistics-A Stepby Step Approach 2-PRM S. MANN , INTRODUCTORY STATICS 3-Stephen Kokoska , introductory Statistics
Percentage of curriculum update	

Lec. Farah Adul-Ghane Younis

Name and signature of

curriculum coordinator



Course Description Form

- Course Name:

Secondary education and educational administration

- Course Code:

EDB125F207

- Semester / Year:

The first and second semesters of the 2024-2025 academic year

- Description Preparation Date:

2024-10-1

- Available Attendance Forms:

In-person and electronic

- Number of Credit Hours (Total) / Number of Units (Total)

60/4

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

Name: Zeyad Bader Hamad
Email: dr.zeyadhamad78@uomosul.edu.iq

- Course Objectives

Course Objectives	**• The main goal of secondary education is to prepare learners to continue their educational attainment in any of the tertiary educa fields, whether higher, vocational, or specialized education, or to work in The first levels in public or private jobs...** **• Developing educational values among students as future teachers.** **• Enabling young people who have completed primary school and entered secondary education to continue developing their personalities in all their physical, intellectual, moral and spiritual aspects by discovering their abilities, inclinations and guidance.** **• Developing their knowledge of the stage of forming a healthy personality, and the stage of self-building, in adolescence.** **• Students learn about the role of each member of the educational institution in the secondary education stage.** **• Students learn about ancient and modern management and supervision methods.**

- Teaching and Learning Strategies

Strategy	• Managing lectures in a way that shows the importance of time. • Group activities for which 10% of the grade is allocated. • Individual and group assignments that require the use of the library and the Internet. • Increasing the spirit of positive competition. • Reciprocal teaching.

- Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowledge and skill	Definition of secondary education	Electronic integrated i the lecture	a test

2	2	Knowledge and skill	High school goals	Electronic integrated the lecture	a test
3	2	Knowledge and skill	Organizing education at secondary level	Electronic integrated the lecture	a test
4	2	Knowledge and skill	Educational innovations secondary education	Electronic integrated the lecture	a test
5	2	Knowledge and skill	Educational innovations in Iraq	Electronic integrated the lecture	a test
6	2	Knowledge and skill	Characteristics of a secondary teacher	Electronic integrated the lecture	a test
7	2	Knowledge and skill	Some experiences of countries around the world in secondary education (America, Britain, France)	Electronic integrated the lecture	a test
8	2	Knowledge and skill	Management concept and development	Electronic integrated the lecture	a test
9	2	Knowledge and skill	Elements of educational administration	Electronic integrated the lecture	a test
10	2	Knowledge and skill	Centralization decentralization in educational administration	Electronic integrated the lecture	a test
11	2	Knowledge and skill	Advantages and advantages of the central educational system	Electronic integrated the lecture	a test
12	2	Knowledge and skill	Disadvantages of the central educational system	Electronic integrated the lecture	a test
13	2	Knowledge and skill	Advantages and advantages of the decentralized educational system	Electronic integrated the lecture	a test
14	2	Knowledge and skill	Factors affecting educational administration terms of centralization decentralization	Electronic integrated the lecture	a test
15	2	Knowledge and skill	The concept of school administration	Electronic integrated the lecture	a test
16	2	Knowledge and skill	Study management styles	Electronic integrated the lecture	a test
17	2	Knowledge and skill	School principal's duties	Electronic integrated the lecture	a test
18	2	Knowledge and skill	Educational administration tasks (administration functions)	Electronic integrated the lecture	a test
19	2	Knowledge and skill	Skills that a school principal must have	Electronic integrated the lecture	a test
20	2	Knowledge and skill	School administration goals characteristics	Electronic integrated the lecture	a test
21	2	Knowledge and skill	The role of classroom management in educational process	Electronic integrated the lecture	a test
22	2	Knowledge and skill	Parent-teacher councils and their objectives	Electronic integrated the lecture	a test
23	2	Knowledge and skill	The concept of educational supervision and its importance	Electronic integrated the lecture	a test

24	2	Knowledge and skill	Objectives of educatic supervision	Electronic integrated the lecture	a test
25	2	Knowledge and skill	Educational supervision jobs	Electronic integrated the lecture	a test
26	2	Knowledge and skill	Foundations of educational supervision	Electronic integrated the lecture	a test
27	2	Knowledge and skill	Types of educational supervision (corrective supervision, authoritarian supervision, democratic oversight)	Electronic integrated the lecture	a test
28	2	Knowledge and skill	The development of the conc of educational supervision	Electronic integrated the lecture	a test
29	2	Knowledge and skill	Features of modern educatic supervision	Electronic integrated the lecture	a test
30	2	Knowledge and skill	Methods of educatic supervision Specifications selecting an educatic supervisor	Electronic integrated the lecture	a test

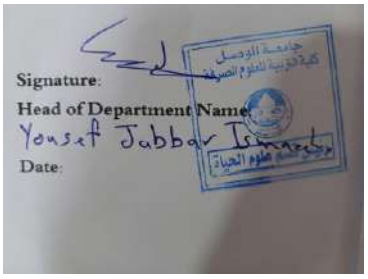
• Course Evaluation

25% half the year
5% daily exams
5% activity (report or lecture)
5% semester exam
60% end-of-year exam

• Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	
Percentage of Curriculum update	

Assit Prof. Dr. Zeyad Badr Hamad
Name and signature of curriculum administrator



Course Description For

University: Mosul College: Education for pure sciences
Department or Branch: Biology

1. Course Name/Stage : English language/ 2nd stage

2. Course Code: **EDBI25F210**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: email , Classroom

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

1

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

Name: Assistant Prof. Dr Bushra Dalli Hamad Shlla
Email: bdhs56@uomosul.edu.iq
Name: Nagham Mohuyaldeen AL-Oubaidy
Email: nagham.mohuyaldeen@oumosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of English languag** • **Knowing the practical applications of English language**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	1	The history of English language	Understanding basic principles	Lecture	quizzes
Second	1	Professional academic Email	Understanding basi principles	Lecture	quizzes, homewo and using ema

Third	1	Definition of bacteria	Understandir basic princip	Lecture	quizzes, homewo and using ema
Fourth	1	*Streptococcus Pneumoniae*	Understanding basi principles	Lecture	quizzes, homework and using email
Fifth	1	English for special purpose Sports Body parts Soccer	Chapter 1	Lecture	Homework
Sixth	1	Human muscles	Understanding basic principles	Lecture	quizzes, homework and using email
Seventh	1	Grammar	Understanding basic principles	Lecture	quizzes, homework and using email
Eighth	1	Prepositions	Understanding basic principles	Lecture	quizzes, homework and using email
Nineth	1	Educational Environment Terms	Understanding basic principles	Lecture	quizzes, homework and using email
Tenth	1	Basic Education in Iraq	Understanding basic principles	Lecture	quizzes, homework a using email
Eleventh	1	Academic writing	Understanding b principles	Lecture	quizzes, homework a using email
Twelfth	1	paraphrase	Understanding basic principles	Lecture	quizzes, homework and using email
Thirteen	1	Educational Technology	Understanding basic principles	ecture	quizzes, omework and using email
Fourteenth	1	General review of the course	Understanding basic principles	Lecture	General discussion
Fifteenth		mid exam			
Sixteenth	1	E-Learning	Understanding basic principles	Lecture	quizzes, homework and using email
Seventeenth	1	IELTS	Understanding basic principles	Lecture	homework
Eighteenth	1	TOEFL	Understanding basic principles	Lecture	quizzes, homework and using email

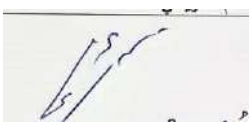
Nineteenth	1	Introduction in to botany	Understanding basic principles	Lecture	Quiz
Twentieth	1	Plant classification	Understanding basic principles	Lecture	homework
Twenty first	1	Introduction in to viruses	Understanding basic principles	Lecture	Quiz
Twenty second	1	Coronaviruses	Understanding basic principles	Lecture	homework
Twenty third	1	English travel vocabulary	Understanding basic principles	Lecture	Quiz
Twenty fourth	1	Infection	Understanding basic principles	Lecture	homework
Twenty fifth	1	The role of bacteria in pathogenicity	Understanding basic principles	Lecture	Quiz
Twenty sixth	1	The vaccine	Understanding basic principles	Lecture	homework
Twenty seventh	1	Boxing Daily routine Weight lifting Family	Chapter 2	Lecture	Quiz
Twenty eighth	1	Writing abstract	Understanding basic principles	Lecture	Quiz
Twenty nineth	1	General review of the course	Understanding basic principles	Lecture	General discussion
Thirtieth		final 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

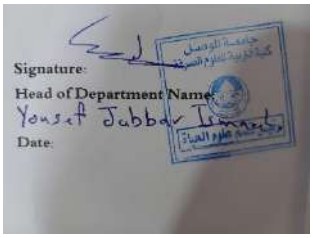
Required textbooks (curricular books, if any)	"New Headway, Beginner Student's Book "Johan and Liz Soars
Main references (sources)	Brown, D. (2014). "Language, Culture and Identity" in Principles of Language Learning and Teaching, (6th Ed). Pearson.
Recommended books and references (scientific journals, reports…)	Brown, D. (2014). "Language, Culture and Identity" in Principles of Language Learning and Teaching, (6th Ed). Pearson
Electronic References, Websites	https://talkpal.ai/?utm_term /



Name and Signature

of Curriculum Administrator

Dr Bushra Shlla



Name and Signature

of Department or Branch Head

Prof. Dr. Youssef Jabbar Ismail

Course Description Form

1. Course Name: Computer
2. Course Code: EDBI25F206
3. Semester / Year: 2024-2025
4. Description Preparation Date: 2024-9-1
5. Available Attendance Forms: presence in the lecture hall and laboratories
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Name: Ass. Lec. Naam Salem Fadhil Email: naamsalem@uomosul.edu.iq
8. Course Objectives

Course Objectives	**• Students learn about the computer and its application programs** **• To qualify and train students on the AI-Ward program to write dissertations and research in the future** **• Students are able to arrange PowerPoint slides and present their research or reports in them in the future** **• Learn to create electronic tables through Excel**

9. Teaching and Learning Strategies

Strategy	a . Definition of the course 1. Defining the concept of computer and its application programs 2. The student's knowledge of the Windows operating system 3. The student's knowledge and application of Word, PowerPoint, a Excel programs B - Subject-specific skills 1. Providing students with how to use a computer. 2. Providing students with how to use the Windows operating syste 3. Providing students with how to use Word, PowerPoint, and Ex programs

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
2-1	**4**	The student becomes familiar with the topics described in the name of the unit	Learn applied computer programs	attendance	Exam
6-3	**8**		Learn to operate Windows	attendance	Exam
10-7	**8**		Learn Word	attendance	Exam
16-11	**12**		Learn Word	attendance	Exam
22-17	**12**		Learn Excel	attendance	Exam
24-23	**4**		Learn Excel	attendance	Exam
28-25	**8**		Learn Powerpoint	attendance	Exam
30-29	**4**		Learn Powerpoint	attendance	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

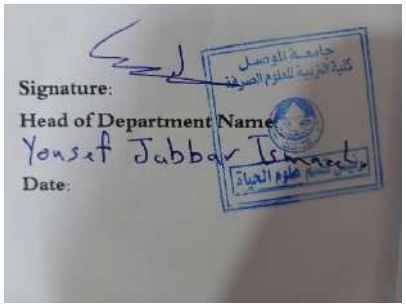
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	**دروس - في مبادئ الحاسب الآلي تاليف د. احمد البراوي 2013.** **تعلّم - مايكروسفت وورد أعداد الدكتور خالد فرهود 2014.**
Electronic References, Websites	

Name and Signature

Of curriculum administrator

Ass. Lec. Naam Salem Fadhil



Course Description Form

University: Mosul College: Education for Pure Sciences
Department or Branch: Biology Department

1. Course Name/ Stage: Plant physiology / Fourth Class

2. Course Code: EDBI25F403

3. Semester / Year: 2025-2024

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: class / Classroom

2/2

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

4/6

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

Name: Mohammed Saeed Faisal. Email: dr.mohmad881@uomosul.edu.iq

8. Course Objectives

Course Objectives	**• Knowing the basic principles of plant Physiology**

9. Teaching and Learning Strategies

Strategy	Lecture, Conversation and discussions , practical experiments ,reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding structure and	Introduction	lecture	Quiz and oral tests

		function			
2	2	Understanding structure and function	Water relations of plants	lecture	Quiz and oral tests
3	2	Understanding structure and function	Diffusion and osmosis	lecture	Quiz and oral tests
4	2	Understanding structure and function	Water and osmotic potential	lecture	Quiz and oral tests
5	2	Understanding structure and function	Stomata and transpiration 1	lecture	Quiz and oral tests
6	2	Understanding structure and function	Stomata and transpiration 2	lecture	Quiz and oral tests
7	2	Understanding structure and function	Photosynthesis 1	lecture	Quiz and oral tests
8	2	Understanding structure and function	Photosynthesis 2	lecture	Quiz and oral tests
9	2	Understanding structure and function	Light and dark reactions 1	lecture	Quiz and oral tests
10	2	Understanding structure and function	Light and dark reactions 2	lecture	Quiz and oral tests
11	2	Understanding structure and function	Photorespiration 1	lecture	Quiz and oral tests
12	2	Understanding structure and function	Photorespiration 2	lecture	Quiz and oral tests
13	2	Understanding structure and function	Kerbs cycle	lecture	Quiz and oral tests
14	2	Understanding structure and function	Transport by phloem	lecture	Quiz and oral tests

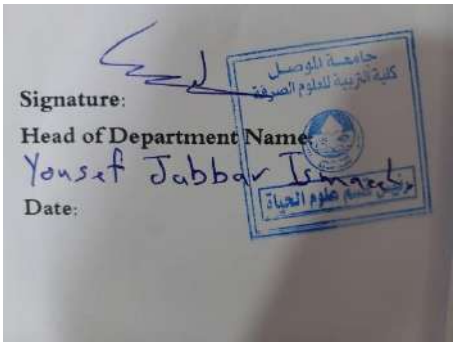
15	2		exam		
16	2		exam		
17	2	Understanding structure and function	Growth regulator and hormones Auxins	lecture	Quiz and oral tests
18	2	Understanding structure and function	Gibberellins and cytokinins	lecture	Quiz and oral tests
19	2	Understanding structure and function	Abscisic acid and ethylene	lecture	Quiz and oral tests
20	2	Understanding structure and function	phytochrome	lecture	Quiz and oral tests
21	2	Understanding structure and function	Plant movements	lecture	Quiz and oral tests
22	2	Understanding structure and function	Germination and seed dormancy	lecture	Quiz and oral tests
23	1		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)	Plant physiology, Faisal abdul-qader
Main references (sources)	Plant physiology , Dr. abdulazem kadim
Recommended books and references (scientific journals, reports…)	Plant physiology by Solisbury and Ross
Electronic References, Websites	https://study.com/academy/lesson/what-is-plant-physiology-definition-experiments.html
Percentage of Curriculum update	



Prof. Dr. Mohamad Saeed Faisal

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for pure science
Department or Branch: Biology

1. 1. Course Name: Practical plant physiology
2. 2. Course Code: EDBI25F403
3. 3. Semester / Year: 2024-2025
4. 4. Description Preparation Date: 1//9/2024
5. 5.Available Attendance Forms: : Laboratory , Classroom
6. 6. Number of Credit Hours (Total) / Number of Units (Total)
4/6
7. Course administrator's name (mention all, if more than one name)
Name: Prof.Dr. Hussein Saber Mohammed Ali **Email: dr.husseinbio76@uomosul.edu.iq** **Name: Assistant Pro. Dr .Mira Usama** **Email: mirausama@ uomosul.edu.iq** **Name: Assistant Pro. Farah Sobhi Saleh .** **Email: Farah_sobhy@ uomosul.edu.iq** **Name: Dr. Rasha Fawzi Abdulrazq** **Email: Rasha.fawzi2016@uomosul.edu.iq** **Name: Dr. Hanan Ameer** **Email: Hananaabdulla@ uomosul.edu.iq**

Name: Dr. raghad mohammed

Email: raghad.mohammed@ uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Knowing the basic principles of plant physiology** • **Knowing the practical applications of plant physiology and Research**

9. Teaching and Learni

10. ng Strategies

Strategy	**The strategy includes theoretical and practical lectures, dialogue and discussions, problem solving, conducting practical experiments, reports and daily assignments**

11. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Skill and knowledge	General Guidelines	Lecture	
2	2	Skill and knowledge	Definition of Plant Physiology	Lecture and PowerPoint presentation+Practical experience	
3	2	Skill and knowledge	Equipment Used in Experiments	Lecture and PowerPoint presentation + practical experience	
4	2	Skill and knowledge	Solutions	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
5	2	Skill and knowledge	Methods of Expressing Solutions	Lecture and PowerPoint presentation +	Quiz and Preparing reports and

				practical experience	homework
6	2	Skill and knowledge	Properties of Solutions	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
7	2	Skill and knowledge	Types of Solutions	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
8	2	Skill and knowledge	Colloidal Solutions	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
9	2	Skill and knowledge	Characteristics of Colloidal Solutions	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
10	2	Skill and knowledge	Cell Structure	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
11	2	Skill and knowledge	Diffusion	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
12	2	Skill and knowledge	Osmosis	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
13	2	Skill and knowledge	Transpiration	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
14	2	Skill and knowledge	Imbiscence	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
15	2	Semester exam	Plasm	Lecture and PowerPoint presentation + practical experience	Quiz and Preparing reports and homework
16	2	Skill and	Estimating the Water Content of Plant	Lecture and PowerPoint	Quiz and Preparing

		knowledge	**Organs**	**presentation + practical experience**	**reports and homework**
17	**2**	**Skill and knowledge**	**Transpiration**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
18	**2**	**Skill and knowledge**	**Water and Mineral Transport in Plants**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
19	**2**	**Skill and knowledge**	**Nutrient Transport in Plants**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
20	**2**	**Skill and knowledge**	**Mineral Nutrition**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
21	**2**	**Skill and knowledge**	**Sand Cultures**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
22	**2**	**Skill and knowledge**	**Hydroponic Cultures**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
23	**2**	**Skill and knowledge**	**Photosynthetic Pigments**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
24	**2**	**Skill and knowledge**	**Chlorophyll**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
25	**2**	**Skill and knowledge**	**Carotene**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
26	**2**	**Skill and knowledge**	**Xanthophyll**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**

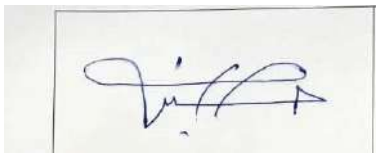
27	**2**	**Skill and knowledge**	**Anthocyanin**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
28	**2**	**Skill and knowledge**	**xylem**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
29	**2**	**Skill and knowledge**	**phloem**	**Lecture and PowerPoint presentation + practical experience**	**Quiz and Preparing reports and homework**
30			**Semester exam**		

12. 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

13. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**• Plant Physiology book by Dr. Faiza Mahmoud Ali** **• Fundamentals of Plant Physiology by Dr. Bassam Taha Yassin**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	
Percentage of curriculum update	



Prof. Dr. Hussein Saber Mohammed Ali

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for pure Science Department or Branch: Biology

1. Course Name and Stage:
Bacteriology/ fourth stage
2. Course Code:
EDBI25F401
3. Semester / Year
: 2024-2025
4. Description Preparation Date:
01/09/2024
5. Available Attendance Forms:
Presence (Face to Face education), Class room
6. Number of Credit Hours (Total) / Number of Units (Total)
Two hours / two units
7. Course administrator's name (mention all, if more than one name) and Scientific title

Name:	Email:
Dr. jassim fathi Ali	dr.jassim.fathi@uomosul.edu.iq
Dr. Mohammed Abdulilah Mohammed	dr.mohammedsh@uomosul.edu.iq
Dr. Nawar Talal Saffawi	nawar9779@uomosul.edu.iq
Dr. Rana Khalid Ahmed	ranakahmed@uomosul.edu.iq

8. Course Objectives	
Subject Objectives	• Introducing students to bacteriology and its fields of study. • Introducing students to the types of microorganisms based on modern classifications in biology. • Studying the microscopic and chemical composition and components of the bacterial cell and the components of the bacterial cell wall. • Methods of their reproduction, methods used for sterilization, and methods and techniques used in their study and cultivation. • Understanding the use of biochemical tests and stains used in their diagnosis. • Understanding the genetic material in microscopic organisms.
9. Teaching and Learning Strategies	
Strategy	Theoretical lectures, talk and discussions, problem solvi

	conducting practical experiments, reports and daily assignments

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to Microbiology	Introduction to Microbiology	lecture	Quiz
2	2	Laboratory Tools and Microscope	Laboratory Tools and Microscope	lecture	Quiz
3	2	Scientific Designation of Bacteria and the Principles of Nomenclature	Scientific Designation of Bacteria and the Principles of Nomenclature	lecture	Quiz
4	2	Mitosis division and Meiosis division	Mitosis division and Meiosis division	lecture	Quiz
5	2	Cellular Structure and Cellular Components of Bacteria	Cellular Structure and Cellular Components of Bacteria	lecture	Homework
6	2	Cellular Structure and Cellular Components of Bacteria	Cellular Structure and Cellular Components of Bacteria	lecture	Homework
7	2	Bacterial Growth and Reproduction	Bacterial Growth and Reproduction	lecture	Homework
8	2	Microbial culture and methods for measuring their growth	Microbial culture and methods for measuring their growth	lecture	Preparing reports on modern techniques in genetic detection
9	2	Nutrient media and their types	Nutrient media and their types	lecture	Quiz
10	2	Physiology of microorganisms	Physiology of microorganisms	lecture	Homework
12	2	Genetic material in bacteria	Genetic material in bacteria	lecture	Quiz & Homework
13	2	Control of microorganisms	Control of microorganisms	lecture	Homework
14	2	Microorganisms in water and soil	Microorganisms in water and soil	lecture	Quiz, Preparing reports and homework
15	2	Microorganisms in food and preservation methods	Microorganisms in food and preservation methods	lecture	Quiz, homework assignments on isolating genetic material using materials available at

					home
16	2	Learn about Biochemical tests	Biochemical tests	lecture	Prepare a report on this technology and the most important errors in the download process
17	2	Learn about Viruses, their types, and composition	Viruses, their types, and composition	lecture	Homework
18	2	Learn about Relationship between microorganisms and humans	Relationship between microorganisms and humans	lecture	Homework
19	2	Study of genetic material in bacteria	Study of genetic material in bacteria	lecture	Homework

11. Course Evaluation and Marks

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)	Practical Microbiology Binder
Main references (sources)	Microbiology fifth ed. Lansing M. Prescott
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	
Percentage of Curriculum update	30%

Dr. Mohammed Abdulilah Al-Shakarchi

Name and Signature
of Curriculum Administrator

Dr. Yousef Jabbar alshahery

Name and Signature
of Department Head


جامعة الموصل
كلية التربية للعلوم الصرفة
رئيس قسم علوم الحياة

Course Description Form

University of Mosul College: Education for pure sciences Department or Branch:Biology

1. Course Name and Stage: Practical Microbiology / **stage 4**

2. Course Code: **EDBI25F401**

3. Semester / Year: **2024–2025**

4. Description Preparation Date: **1/9/2024**

5. Available Attendance Forms: In presence, Classroom

6. Number of Credit Hours (Total) / Number of Units (Total) 15 weeks/ 8/2

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

Name: Nawar Talal Hamed
Email: nawar9779@uomosul.edu.iq
Dr. Dhuha Jasem Mohammed
Dr. Rana Khalid
Dr. Mohammed Abd –Elaa
Dr. Fawz Abdel Salam

8. Course Objectives

Subject Objectives	• **Knowing the basic principles of Biotechnology and Its bio–applications** • **Knowing the practical applications of Biotechnology**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solvi , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	8	Knowledge and Abilit	Sterilization and physical methods of sterilization	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Second	8	Knowledge and Ability	Sterilization using chemicals and mechanics	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Third	8	Knowledge and Ability	Bacterial Media	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fourth	8	Knowledge and Ability	Culture of Bacteria	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fifth	8	Knowledge and Ability	The bacterial shapes and their application	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Sixth	8	Knowledge and Ability	Bacterial stain	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Seventh	8	Knowledge and Ability	differential stain (Gram stain)	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Eighth	8	Knowledge and Ability	Spore stain	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Nineth	8	Knowledge and Ability	Capsule stain	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Tenth	8	Knowledge and Ability	Measurement of bacterial growth	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Eleventh	8	Knowledge and Ability	determination of the minimum inhibitory concentration (MIC) for bacteria	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twelfth	8	Knowledge and Ability	Detection of movement bacteria	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Thirteen	8	Knowledge and Ability	Antibiotic	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fourteenth	8	Knowledge and Ability	Diagnosis of bacterial isolates by traditional and biochemical tests	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fifteenth	8	Knowledge and Ability	Bacteria diagnosis by API method		
Sixteenth	1	Exam		Whiteboard, presentation and video lectures	Daily exam, questions and discussions

Seventeenth	8	Knowledge and Ability	Diagnosis of bacteria using the vitic device	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Eighteenth	8	Knowledge and Ability	Mycoplasma	Whiteboard, presentation questions	Daily exam, questions and discussions
Nineteenth	Application in schools				
Twentieth	Application in schools				
Twenty first	Application in schools				
Twenty seco	Application in schools				
Twenty third	Application in schools				
Twenty four	Application in schools				
Twenty fifth	8	Knowledge and Ability	Chlamydia	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty sixth	8	Knowledge and Ability	Water Microbiology	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty seventh	8	Knowledge and Ability	Milk Microbiology	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty eight	8	Knowledge and Ability	Soil Microbiolog	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty nine	8	Knowledge and Ability	anaerobic bacter	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Thirtieth	1	Exam			

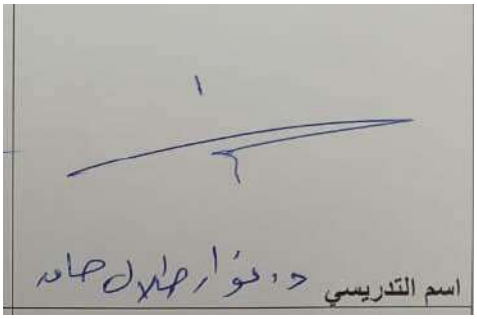
11. Course Evaluation and Marks

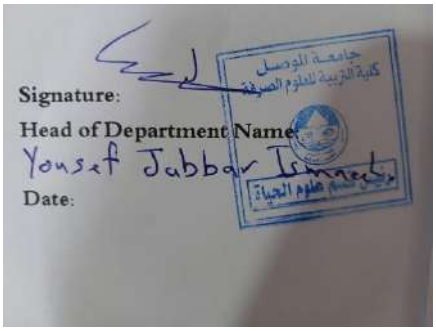
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Binding practical microbiology
Main references (sources)	•
Recommended books and references (scientific journals, reports…)	Practical Microbiology Book - Written by: Dr. Samir Al-Layla The book "Basic Techniques in Microbiology" - Written by: Dr. Ahmed Mohammed Al-Mohammed Laboratory Manual in Microbiology - Written by: Dr. Muhammad Hassan Microbiology: A Laboratory Manual" Written by: James G. Cappuccino and Natalie Sherman

Electronic References, Websites	• Journal of Visualized Experiments (JoVE) • Microbe Online • www.microbeonline.com
Percentage of Curriculum update	%30





Name and Signature

of Curriculum Administrator

M.D. Nawar Talal Hamed/ Microbiology

Dr. Dhuha Jasem Mohammed
Dr. Rana Khalid
Dr. Mohammed Abd –Elaa
Dr. Fawz Abdel Salam

Name and Signature

of Department or Branch Head

Course Description Form

University : Mosul College: Education for Pure Science
Department : Biology

1. Course Name/ Stage: Theoretical Parasitology/ Fourth Stage
2. Course Code: **EDBI25F402**
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Lecture, Classroom
6. Number of Credit Hours (4) / Number of Units (4)
4/6
7. Course administrator's name (mention all, if more than one name)
Prof. Dr. Asmaa Abdulazeez Ali dr.asmaa_abdulaziz@uomosul.edu.iq Assis. Prof. Ibrahim Faris Ali ibrahimfali@uomosul.edu.iq
8. Course Objectives

Course Objectives	• **Introducing all Phyla of parasites in details.** • **Studying the different parasites concerning:** **Morphology, symptoms, pathogenesis,** **life cycle, treatment, and prevention**
9. Teaching and Learning Strategies	
Strategy	Theoretical lecture, talk and discussions, Quiz.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Choosing appropriate organisms for study	Introduction of parasites	Lecture	quiz
Second	2	Rhizopoda	*Entamoeba histolytic* *E. coli*	Lecture	Quiz
Third	2	Flagellates	Intestinal and atrial flagellates	Lecture	Quiz
Fourth	2	Flagellates	Tissue and blood flagellates	Lecture	Quiz
Fifth	2	Ciliates	*Balantidium coli*	Lecture	Quiz
Sixth	2	Sporozoa	Intestinal sporozoa	Lecture	Quiz
Seventh	2	Sporozoa	Blood and tissue Sporozoa	Lecture	Quiz
Eighth	2	Introduction of Helminthes	Types of Helminthes	Lecture	Quiz
Nineth	2	Trematodes	Intestinal Trematodes	Lecture	Quiz
Tenth	2	Trematodes	Hepatic Trematodes	Lecture	Quiz
Eleventh	2	Trematodes	Pulmonary Trematod	Lecture	Quiz
Twelfth	2	Trematodes	Blood Trematodes	Lecture	Quiz
Thirteen	2	Introduction of Cestodes	Types of Cestodes	Lecture	Quiz
Fourteenth	2	Cestodes	Types of Cestodes	Lecture	Quiz
Fifteenth	1	Exam			
Sixteenth	2	Pseudophyllidea	*Diphyllobothrium latum*	Lecture	Quiz
Seventeenth	2	Cyclophyllidea	Cyclophyllidea (Acetabula)	Lecture	Quiz
Eighteenth	2	Cyclophyllidea (Taeniidae)	*Taenia saginata & T. solium*	Lecture	Quiz
Nineteenth	2	Cyclophyllidea (Taeniidae)	*Echinococcus granulosus & E. multilocularis*	Lecture	Quiz
Twentieth	2	Cyclophyllidea (Hymenolepididae)	*Hymenolepis nana & H. diminuta*	Lecture	Quiz
Twenty first	2	Cyclophyllidea (Dilepidiidae)	*Dipylidium caninum*	Lecture	Quiz
Twenty second	2	Introduction of Nematodes	Types of Nematodes	Lecture	Quiz
Twenty third	2	Intestinal Nematodes	Types of intestinal Trematodes	Lecture	Quiz

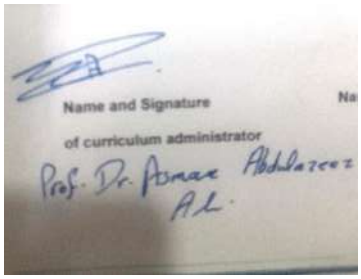
Twenty fourth	2	Intestinal Nematodes	*Ascaris lumbricoides & Enterobius vermicularis*	Lecture	Quiz
Twenty fifth	2	Intestinal Nematodes	*Trichuris trichura & Trichinella spiralis*	Lecture	Quiz
Twenty sixth	2	Nematodes (Ancylostmatidae)	*Ancylostoma duodenale & Necator americanus*	Lecture	Quiz
Twenty seventh	2	Nematodes (Strongylidae)	*Strongyloides stercoralis*	Lecture	Quiz
Twenty eighth	2	Tissue & Blood Nematodes	*Wuchereria bancrofti & Loa loa*	Lecture	Quiz
Twenty ninth	2	Tissue Nematodes	*Dracunculus medinensis & Onchocerca volvulus*	Lecture	Quiz
Thirtieth	1	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

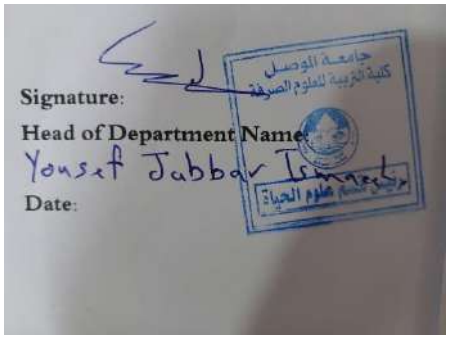
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical Parasitology a text book Rohela Mahmud, Yvonne Ai Lian Lim, Amirah Amir, Springer 2017.
Main references (sources)	Medical Parasitology, by Mridul Malakar, Jitendra Sharma, LAP LAMBERT Academic Publishing (June 4, 2019).
Recommended books and references (scientific journals, reports…)	Essentials of Medical parasitology, by Apurba S. sastry & Sandhya Bhat, Jaypee Brothers Medical Publishers Pvt. Ltd.; 2nd ed. edition (October 31, 2018). Experimental Parasitology (Journal)
Electronic References, Websites	https://ww.microbiologybook.org/book/parasit-sta.htm
Percentage of Curriculum Update	30%



Name and Signature

of Curriculum Administrator



Course Description Form

University : Mosul College: Education for Pure Science
Department : Biology

1. Course Name/ stage: Practical Parasitology/ Fourth class
2. Course Code: **EDBI25F402**
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory , Classroom
6. Number of Credit Hours (4) / Number of Units (64)
4/6
7. Course administrator's name (mention all, if more than one name)
dr.asmaa_abdulaziz@uomosul.edu.iq Prof. Dr. Asmaa Abdulazeez Ali ibrahimfali@uomosul.edu.iq Assis. Prof. Ibrahim Faris Ali noor2005@uomosul.edu.iq Assis.Prof. Hanan Sdeeq Sadoon suhyy1974@uomosul.edu.iq Dr. Suhayla Yakoub Yousif zeena.dhubyan@uomosul.edu.iq Zeena Dhubyan Mohammed Zeki
8. Course Objectives

Course Objectives	• **Introducing all Phyla of parasites in details.** • **Microscopic examination and diagnosis of parasites.**
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture, talk and discussions, problem solving, reports and homework
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Choosing appropriate organisms for study	Introduction of parasites	Lecture	quiz
Second	2	Rhizopoda	*Entamoeba histolytic* *E. coli*	Lecture &Diagnosis	Quiz
Third	2	Flagellates	Intestinal and atrial flagellates	Lecture and diagnosis	Quiz
Fourth	2	Flagellates	Tissue and blood flagellates	Lecture and diagnosis	Quiz
Fifth	2	Ciliates	*Balantidium coli*	Lecture and diagnosis	Quiz
Sixth	2	Sporozoa	Intestinal sporozoa	Lecture and diagnosis	Quiz
Seventh	2	Sporozoa	Blood and tissue Sporozoa	Lecture and diagnosis	Quiz
Eighth	2	Introduction of Helminthes	Types of Helminthes	Lecture	Quiz
Nineth	2	Trematodes	Intestinal Trematodes	Lecture and diagnosis	Quiz
Tenth	2	Trematodes	Hepatic Trematodes	Lecture and diagnosis	Quiz
Eleventh	2	Trematodes	Pulmonary Tremato	Lecture and diagnosis t	Quiz
Twelfth	2	Trematodes	Blood Trematodes	Lecture and diagnosis	Quiz
Thirteen	2	Introduction of Cestodes	Types of Cestodes	Lecture	Quiz
Fourteenth	2	Cestodes	Types of Cestodes	Lecture and diagnosis	Quiz
Fifteenth	1	Exam			
Sixteenth	2	Pseudophyllidea	*Diphyllobothrium latum*	Lecture and diagnosis	Quiz
Seventeenth	2	Cyclophyllidea	Cyclophyllidea (Acetabula)	Lecture and diagnosis	Quiz
Eighteenth	2	Cyclophyllidea (Taeniidae)	*Taenia saginata & T. solium*	Lecture and diagnosis	Quiz
Nineteenth	2	Cyclophyllidea (Taeniidae)	*Echinococcus granulosus & E. multilocularis*	Lecture and diagnosis	Quiz
Twentieth	2	Cyclophyllidea (Hymenolepididae)	*Hymenolepis nana & H. diminuta*	Lecture and diagnosis	Quiz
Twenty first	2	Cyclophyllidea (Dilepidiidae)	*Dipylidium caninum*	Lecture and diagnosis	Quiz
Twenty second	2	Introduction of Nematodes	Types of Nematodes	Lecture	Quiz

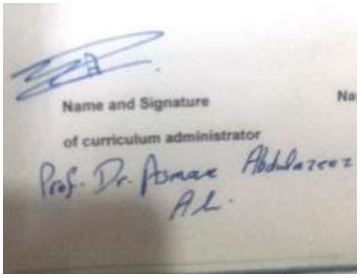
Twenty third	2	Intestinal Nematodes	Types of intestinal Trematodes	Lecture	Quiz
Twenty fourth	2	Intestinal Nematodes	*Ascaris lumbricoides & Enterobius vermicularis*	Lecture and diagnosis	Quiz
Twenty fifth	2	Intestinal Nematodes	*Trichuris trichura & Trichinella spiralis*	Lecture and diagnosis	Quiz
Twenty sixth	2	Nematodes (Ancylostmatidae)	*Ancylostoma duodenale & Necator americanus*	Lecture and diagnosis	Quiz
Twenty seventh	2	Nematodes (Strongylidae)	*Strongyloides stercoralis*	Lecture and diagnosis	Quiz
Twenty eighth	2	Tissue & Blood Nematodes	*Wuchereria bancrofti & Loa loa*	Lecture and diagnosis	Quiz
Twenty ninth	2	Tissue Nematodes	*Dracunculus medinensis & Onchocerca volvulus*	Lecture and diagnosis	Quiz
Thirtieth	1	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

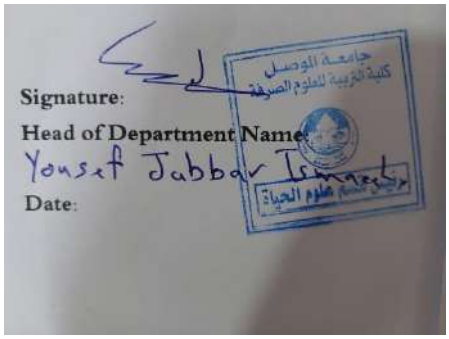
12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Medical Parasitology a text book Rohela Mahmud, Yvonne Ai Lian Lim, Amirah Amir, Springer 2017.
Main references (sources)	Medical Parasitology, by Mridul Malakar, Jitendra Sharma, LAP LAMBERT Academic Publishing (June 4, 2019).
Recommended books and references (scientific journals, reports…)	Essentials of Medical parasitology, by Apurba S. sastry & Sandhya Bhat, Jaypee Brothers Medical Publishers Pvt. Ltd.; 2nd ed. edition (October 31, 2018). Experimental Parasitology (Journal)
Electronic References, Websites	https://ww.microbiologybook.org/book/parasit-sta.htm
Percentage of curriculum update	30%



Name and Signature

of Curriculum Administrator



Name and Signature

of Department head

Course Description Form

University: Mosul College: Education of pure science
Department or Branch: Biology

1. Course Name and Stage: Animal Physiology /Fourth stage

2. Course Code: **EDBI25F405**

3. Semester / Year: year 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom and classroom

6. Number of Credit Hours (Total) / Number of Units (Total) 4 hours /week

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

Name: Assistant Prof. Dr. Banan Rakan Dubdoob
Assistant Prof. Dr. Amal Abdulilah Alkshab
Email: dr.banandabdoub@uomosul.edu.iq
amal.biology@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• **Knowing the basic principles of Animal Physiology** • **Knowing the practical applications of Animal physiology**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , discussions and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Giving an introductory introduction to the functions of organs	Introduction to physiology and its general principles	Lecture	quizzes

Second	2	Identify the components of the nervous system and its functions	Physiology of the nervous system - the organization of electrical signals and activity	Lecture	Quizzes
Third	2	Identify the components of the nervous system, its functions, and neurotransmitters	Physiology of the nervous system/action potential and nerv properties - the precise structure o synapses - neurotransmitters	Lecture	Quizzes
Fourth	2	Identify the components of the nervous system, its functions, and neurotransmitters	Physiology of the nervous- precise structure of synaps - neurotransmitter	Lecture	homework
Fifth	2	Identify the components of the muscular system, its functions, and the precise structures of the muscles	Physiology of the muscular system/ty of muscles - fine structures of muscl cells - chemical properties of muscl	Experiment	, homework
Sixth	2	Identifying how heat is produced in the muscle - oxygen deficiency - fatigue	Physiology of the muscular system/sources of energy in the muscle, the relationship between stimulus and response – heat production in the muscle – oxygen deficit – fatigue	Problem solving	Homework
Seventh	2	Identifying the components of the circulatory system and the heart - the pacemaker - electrical accidents in the heart - transmission of the excitation wave	Circulatory system/heart - pacemaker - electrical accidents in the heart - transmission of excitation wave	experiment	homework
Eighth	2	Identifying blood pressure and factors affecting it - nervous control - blood groups - Rh factor -	Circulatory physiology/blood pressure and factors affecting it	Problem solving	Homework

		lymphatic system - lymph nodes and their functions.	- nervous control - blood groups - Rh factor - lymphatic system - lymph nodes and their functions		
Ninth	2	Identify the components of the digestive system and digestive enzymes	Physiology of the digestive system/digestive system - accessory glands - digestion in the stomach - digestive enzymes in the stomach	Experiment	homework
Tenth	2	Identifying intestinal digestion - the pancreas and its secretions - absorption - excretion	Physiology of the digestive system/intestinal digestion - the pancreas and its secretions - absorption - excretion	Problem solving	Homework
Eleventh	2	Learn how to regulate body fluids	The kidneys and the excretory system / regulation of body fluids - kidney functions - regulation of urine volume	Experiment	Quiz
Twelfth	2	Learn about the physiology of breathing	Respiratory system	Lecture	H.M
Thirteen	2	Identify the endocrine glands humans	Endocrine glands hormones - regulat the formation secretion of hormo - the pituitary glan its hormones - thyroid gland - hormones	Experiment	, homework
Fourteenth	2	Identifying the parathyroid gland - its hormones, the pineal gland - the thymus gland	Endocrine glands / parathyroid gland - its hormones, pineal gland - thymus gland	Problem solving	Homework
Fifteenth	2	Learn about the endocrine/adrenal glands – sex glands and sex hormones	Endocrine glands/adrenal glands – sex glands and sex	Lecture	Quiz, and homework

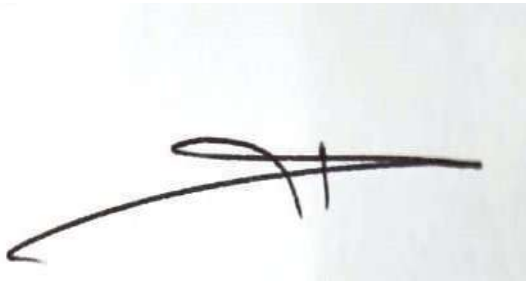
			hormones & prostaglandins		

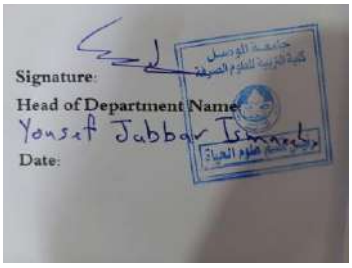
11. Course Evaluation and Marks

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)	Animal Physiology / Written by: Dr. Youssef Muhammad Arab Dr. Sabah Nasser Al-Alwaji Dr. Farouk Naji Karmana Dr.. Marwan Abdel Rahim Yas
Main references (sources)	Physiology book written by Linda S. Costanzo2020 Commonwealth University, Tokyo. Functional anatomy and physiology, writ by: Dr. Shetiwi Al-Abdullah. Jordan
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	
Percentage of Curriculum update	25%





Assistant Prof. Dr. Amal Abdulilah Alkshab

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul University **College:** College of Education of Pure Science
Department or Branch: Biology department

1. Course Name and Stage: Animal physiology\practical\ year 4

2. Course Code: **EDBI25F405**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory, Classroom

6. Number of Credit Hours (Total) / Number of Units (Total): 2/4

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

Name: Tamara Waleed Jihad Email: tamara.jihad@uomosul.edu.iq
Dr. Huda sabir khalaf
Rulaa saedallah najm
Maya Ibrahim

8. Course Objectives

Subject Objectives	• Knowing the basic principles of animal physiolog • Knowing the practical applications of animal physiology

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lectures, talks and discussions, problem-solving, performing practical experiments, reports, and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

first	2	How to use a Kymograph	Learn about and use device keys	Lecture	quizzes
	2	Preparation of laboratory frogs	Anatomy of the muscle and nerv of the frog	Lecture	Reports preparation
Third	2	Simple muscle twitch (S.M.T)	Contraction curve analysis a learn about its three phases	Lecture	Quizzes and reports
Fourth	2	Stair-case phenomenon	The relationship between the strength of the stimulus and the magnitude of Response	Practical experience	Reports preparation
Fifth	2	Tetanus Phenomenon	Identify both complete and deficient muscle tetany,	Problem-solving	Reports preparation
Sixth	2	Adding two consecutive stimuli below the minimum	Muscle response is a weak contraction	Practical experience	Reports preparation
Seventh	2	Adding two consecutive stimuli below the maximum	The effect of repeated stimulation on muscle contraction	Practical experience	Reports preparation
Eighth	2	Measurement of the total time of blood clotting	Determine the time required for blood clotting.	Practical experience	Quizzes and reports
Nineth	2	Measuring the bleeding time	Knowledge of platelet efficiency in terms of quantity and function	Practical experience	Quizzes and reports
Tenth	2	Determination of hemoglobin in the blood	Finds the rate of hemoglobin in the blood	ractical experien	Reports preparation
Eleventh	2	The erythrocyte sedimentation rate	ESR	ractical experien	Quizzes and reports
Twelfth	2	find the rate of erythrocyte congestion	PCV	Practical experience	Quizzes and reports

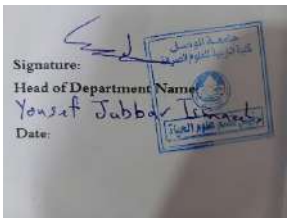
Thirteen	2	Types of blood group	Find and identify blood groups	ractical experier	Reports preparation
Fourteenth	2	blood pressure	Finding the rate of blood pressure in humans	Practical experience	quizzes
Fifteenth	1		Exam		
Sixteenth	1		Exam		
Seventeenth	2	Diabetes mellitus	Knowledge of sugar percentage in the blood	Practical experience	quizzes
Eighteenth	2	Effect of fatigue on (S.M.T)	Muscle exhaustion and lack of response to stimulus	Practical experience	Reports preparation
Nineteenth	application				
Twentieth	application				
Twenty first	application				
Twenty second	application				
Twenty third	application				
Twenty fourth	application				
Twenty-fifth	2	Red blood cell count	Find the total number of RBC	Practical experience	Reports preparation
Twenty sixth	2	White blood cell count	Find the total number of WBC	Practical experience	Quizzes and reports
Twenty seventh	2	Blood haemolysis	Determination of osmotic resistance to red blood cells	Practical experience	Reports preparation
Twenty eighth	2	Differential leucocyte count	Preparing bloody movies to find out the WBC account	Practical experience	Quizzes and reports
Twenty nineth	1		Final practical exam		
Thirtieth	1		Final practical exam		

11. Course Evaluation and Marks

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)	Andrew ,B.L.(1972).Experimental physiology Edinburgh Churchill Livingstone
Main references (sources)	Guyton and hall text book of Medical Physiology.2020. 14th ed.canada.
Recommended books and references (scientific journals, reports…)	Guyton A.C. and Hall j.E.(2007).Textbook of medical physiology. U.S.A
Electronic References, Websites	https://Journals. Physiology.org
Percentage of Curriculum update	10%



Name and Signature

of Curriculum Administrator

Lecturer. Tamara Waleed Jihad

Name and Signature

of Department or Branch Head

Prof. Yousif Jabbar Ismail

Course Description For

University: Mosul College: Education for Pure Science
Department or Branch: Biology

1. Course Name/ Stage: Immunology/ Fourth

2. Course Code: **EDBI25F407**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Lectures , Classroom

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

3/5

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

Name: Assistant Prof. Dr. Hasan Faisal Hussein Kahya
Email: dr.hasankahya@uomosul.edu.iq
Name: Assistant Prof. Dr Bushra Dalli Hamad Shlla
Email: bdhs56@uomosul.edu.iq

8. Course Objectives

Course Objectives	• Providing students with the basic concepts of immunology • Introducing the students to the body'simmune system and its basic elements • Providing the students with laboratory skills on how conduct serological and immunological tests to diagnose diseases • Introducing the students to some immune diseases and their impact on the body health

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Knowledge and skills	Introduction to immunology and history of immunology	Lecture	Quizzes
Second	2	Knowledge and skills	Types of immunity, innate immunity	Lecture	Quizzes
Third	2	Knowledge and skills	Cellular and non-cellular components of innate immunity	Lecture	Quizzes

Fourth	2	Knowledge and skills	Immune receptors and phagocytosis	Lecture	Quizzes
Fifth	2	Knowledge and skills	Immune organs and lymph tissues	Lecture	Quizzes
Sixth	2	Knowledge and skills	Antigens: types of antigens	Lecture	Quizzes
Seventh	2	Knowledge and skills	Antibodies: types, characterization of antibodies	Lecture	Quizzes
Eighth	2	Knowledge and skills	Complement system: pathways of complement system	Lecture	Quizzes
Nineth	2	Knowledge and skills	Immune modulation and immune response	Lecture	Quizzes
Tenth	2	Knowledge and skills	Acquired immunity: types and components	Lecture	Quizzes
Eleventh	2	Knowledge and skills	Cellular components of acquired immunoty	Lecture	Quizzes
Twelfth	2	Knowledge and skills	Humoral immunity	Lecture	Quizzes
Thirteen	2	Knowledge and skills	Cell mediated immunity	Lecture	Quizzes
Fourteenth	2	Knowledge and skills	Antigen processing and presentation	Lecture	Quizzes
Fifteenth	1	Knowledge and skills	Major histocompatibility complex	Lecture	Quizzes
Sixteenth	2	Knowledge and skills	Immune rejection of transplanted orqans	Lecture	Quizzes
Seventeenth	2	Knowledge and skills	Hypersensitivity reactions	Lecture	Quizzes
Eighteenth	2	Knowledge and skills	Immune tolerance and autoimmune diseases	Lecture	Quizzes
Nineteenth	2	Knowledge and skills	Inflammation: types and causes	Lecture	Quizzes
Twentieth	2	Knowledge and skills	Immune response against microbial infections	Lecture	Quizzes
Twenty first	2	Knowledge and skills	Immunization: types and impacts	Lecture	Quizzes
Twenty second	2	Knowledge and skills	Clinical immunology: definition and types	Lecture	Quizzes
Twenty third	2	Knowledge and skills	Immune response against bacterial infections	Lecture	Quizzes
Twenty fourth	2	Knowledge and skills	The effect of drugs on the immune system	Lecture	Quizzes
Twenty fifth	2	General review			

11. Course Evaluation

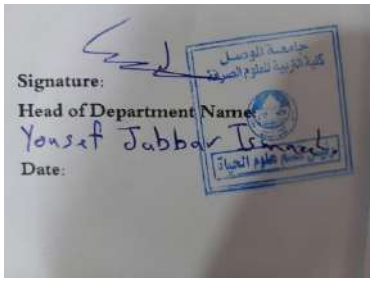
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	اساسيات علم المناعة 2021 تأليف احمد علي حسين\ مؤسسة دار الصادق الثقافية
Main references (sources)	Basic Immunology, Function and Disorders of the Immune System/ Abul, K. Abbas; Andrew H. Lightman; Shiv Pillai
Recommended books and references (scientific journals, reports...)	Immunology, A short Course 2015, 7th edition Richard Coico, Geoffrey Sunshine
Electronic References, Websites	https://onlinelearning.hms.harvard.edu/hmx/courses/immunology/
Percentage of curriculum update	

Assist Prof. Hasan Faisal Hussein Kahya

Name and Signature

of Curriculum Administrator



Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Science
Department or Branch: Biology Department

1. Course Name/ Stage: Practical immunity/ Fourth
2. Course Code:
EDBI25F407
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Laboratory , Classroom
6. Number of Credit Hours (Total) / Number of Units (Total)
3/5
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Dhuha Jasem Mohammed Email: dhu.jasem@uomosul.edu.iq Dr. Rana Khalid MSc. Alla Taha MSc. Zahra Hazem
8. Course Objectives

Course Objectives	• **Knowing the basic principles of immunity** • **Knowing the practical applications of immunity**
9. Teaching and Learning Strategies	
Strategy	Practical and theoretical lecture , talk and discussions, problem solving , performing practical experiments , reports and homework

10. Course Structure

Week	Hours	Required Learning	Unit or subject	Learning	Evaluation

		Outcomes	name	method	method
first	2	Agglutination Test	Serological reactions	Practical experiance	quizzes
Second	2	Agglutination Test	Types of antigens	Practical experiance	quizzes
Third	2	Agglutination Test	Latex agglutinatior	Practical experiance	quizzes
Fourth	2	Agglutination Test	Typhoied diag.	Practical experiance	Quiz, report , homework
Fifth	2	Agglutination Test	Serological diag.	Practical experiance	Homework
Sixth	2	Agglutination Test	Widal test	Practical experiance	Quiz, report , homework
Seventh	2	Agglutination Test	Brucella fever	Practical experiance	Homework
Eighth	2	Agglutination Test	Serological Brucella diag.	Practical experiance	Quiz, report , homework
Nineth	2	Agglutination Test	blood	Practical experiance	Homework
Tenth	2	Agglutination Test	WBC COUNT	Practical experiance	Quiz, report homework
Eleventh	2	EXAM		Practical experiance	Quiz, report homework
Twelfth	2	Agglutination Test	Problem solving	Problem solving	Homework
Thirteen	2	Agglutination Test	Blood Group	Lecture	Quiz, and homework
Fourteenth	2	Agglutination Test	RH factor	Practical experiance	Homework
Fifteenth	1	Exam			
Sixteenth	2	Agglutination Test	ABO	Practical experiance	Quiz, report , homework
Seventeenth	2	Agglutination Test	RF Test	Practical experiance	Quizzes
Eighteenth	2	Agglutination Test	Problem solving	Problem solving	Quiz, and homework
Nineteenth	2	Agglutination Test	Rumatoid fever	Practical experiance	Quizzes
Twentieth	2	Agglutination Test	ESR test	Practical experiance	homework
Twenty first	2	Agglutination Test	ASOT	Lecture	Quiz
Twenty second	2	Agglutination Test	Allergy	Lecture	Lecture
Twenty third	2	Agglutination Test	Coombes test	Lecture	Quiz
Twenty fourth	2	Agglutination Test	complement	Lecture	homework

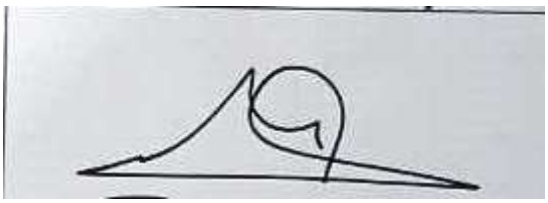
Twenty fifth	2	Agglutination Test	ELISA test	lecture	Quiz
Twenty sixth	2	Agglutination Test	autoimmunodiseas	Lecture	homework
Twenty seventh	2	Agglutination Test transfer	Scientific film	Lecture	Quiz
Twenty eighth	2		EXAM		Quiz
Twenty nineth	2		applications		Quiz
Thirtieth	1	Exam			

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)	Malzma practical immunity by Dr. Dhuha Jasem Mohammed Dr.Rana Khalid
Main references (sources)	Kumar, A. 2013, Text Book of Immunology 1st edition, published by TERI New Delhi India. Punt, J. ; Stranford ,S. A. and Jones , P. P. 2019 , Kuby Immunology 8th edition , printed in the USA.
Recommended books and references (scientific journals, reports…)	, https://www.ncbi.nlm.nih.gov/books/NBK26830
Electronic References, Websites	, https://www.ncbi.nlm.nih.gov/books/NBK26830



Dr. Duha Jasim Mohammed

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Science
Department or Branch: Biology

1. Course Name/ Stage: Measurement and evaluation/ Fourth stage

2. Course Code:- EDB125M406

3. Semester / Year: 2024−2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Lecture, class discussion, electronic classes , Classroom

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

2/2 unite

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

Name: Prof. Dr Wafaa Mahmood Younus
Email: dr.wafamahmood@uomosul.edu.iq

8. Course Objectives

Course Objectives	• **Identify the principles of measurement and evaluation** • **The student learns to take various tests in biology** • **The student builds a table of specifications** • **The student must meet the conditions for a good test** **To achieve transactions of ease and difficulty**

9. Teaching and Learning Strategies

Strategy	Lecture, class discussion, electronic classes, talk and discussions, problem solving , , reports and homework

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

first	2	Learn about the basic concepts of measurement and evaluation	Basic concepts	Lecture	reports and homework
Second	2	Identify the functions of achievement tests	Chapter II	Lecture	quizzes
Third	2	The relationship between measurement and testing and evaluation	Types educational evaluation	Lecture	Oral question
Fourth	2	Types of achievement tests	Oral exams	Lecture	Quiz, report , homework
Fifth	2	Written tests	Written tests	Lecture	Homework
Sixth	2	Performance tests	Note card	Lecture	Quiz, report , homework
Seventh	2	Doing types of tests	Practical application to types of tests	Lecture	Homework
Eighth	2	Educational objectives	Making cognitive goals	Lecture	Quiz, report , homework
Nineth	2	Specification table	Make a table of specifications	Lecture	Homework
Tenth	2	How to formulate question paragraphs	Make questions	Lecture	Quiz, report homework
Eleventh	2	A test based on the subje	A test on the subject	Lecture	Quiz, report homework
Twelfth	2	Conditions for a good	test Conditions for a good test	Lecture and discussion	Homework
Thirteen	2	Honesty and its types	Honesty and its types	Lecture, daily exams and homework	daily exams and homework
Fourteenth	2	Reliability and its types	Reliability and its types	Lecture	Homework
Fifteenth	2	Objectivity ar comprehensiven	Objectivity a comprehensive ss	Lectur Daily	exams
Sixteenth	2	Psychometric properties	Psychometric properties	lecture	, daily exams and homework
Seventeenth	2	Ease and difficulty Extracting	the difficulty factor using equations	Lecture	Solving problems
Eighteenth	2	Discrimination coefficient,	extraction of discrimination coefficient,	lecture,	Quiz problem solving,,
Nineteenth	2	Daily dose of the material	Daily dose of the material	Lecture	Quizzes
Twentieth	2	Setting tests with correct conditions,	applied training	lecture,	student discussion

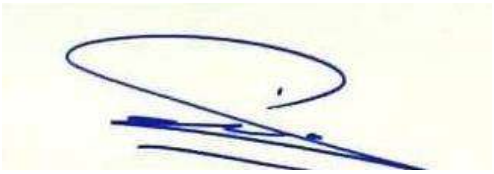
					and interaction with the scientific material

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 ; 25 Mid-year exam+15 Daily exams+60 Final exam of the year

12. Learning and Teaching Resources

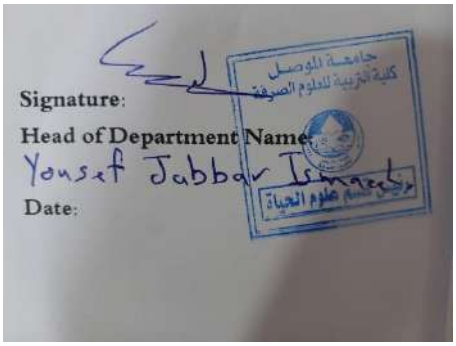
Required textbo (curricular books, any)	
Main referen (sources)	Al-Dulaimi, Ihsan Aliwi and Adnan Mahmoud Al-Mahdawi: Measurement and evaluation in Educational Process, 2005, Iraq
Recommended books and references (scientific journals, reports…)	Measurement and evaluation in the teaching process, 2006, Allam, Salah El-Din Educational Measurement and Evaluation, 2019, Asaad Hussein Atwan, and Abu Shaaban
Electronic Referenc Websites	https:// Qorrectassess.com /



Prof. Dr Wafaa Mahmood Younus

Name and Signature

of Curriculum Administrator



Name and Signature

of Department or Branch Head

Course Description Form

University of Mosul **College: Education for Pure Science**

Department or Branch:Biology

1. Course Name and Stage: **Biotechnology/ stage 4**

2. Course Code: **EDBI25F404**

3. Semester / Year: **2024**–2025

4. Description Preparation Date: **1/9/2024**

5. Available Attendance Forms: In presence, Classroom

6. Number of Credit Hours (Total) / Number of Units (Total) 15 weeks/ 2/2

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

Name: Mira Ausama Ahmed
Email: mirausama@uomosul.edu.iq

Nawar Talal Hamed
nawar9779@uomosul.edu.iq

8. Course Objectives

Subject Objectives	• **Knowing the basic principles of Biotechnology and Its bio–applications** • **Knowing the practical applications of Biotechnology**

9. Teaching and Learning Strategies

Strategy	Practical and theoretical lecture , talk and discussions, problem solv , reports and homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Knowledge and Ability	**Introduction** of alga**e**	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Second	2	Knowledge and Ability	Classification of alga**e and Algae a sources of active ingredients**	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Third	2	Knowledge and Ability	General urine analysis	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fourth	2	Knowledge and Ability	Urinary tract infection **and** Urine culture	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fifth	2	Knowledge and Ability	Phycoremediation	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Sixth	2	Knowledge and Ability	Algal Biofuel	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Seventh	2	Knowledge and Ability	**PCR test**	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Eighth	2	Knowledge and Ability	Antibiotics from Algae	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Nineth	2	Knowledge and Ability	Algal Biofertilization	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Tenth	2	Knowledge and Ability	*H.pylori* stomach bacteria	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Eleventh	2	Knowledge and Ability	Diabetic foot infection	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twelfth	2	Knowledge and Ability	Blood analysis	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Thirteen	2	Knowledge and Ability	Uses of algae and bioactive compounds with its applications	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fourteenth	2	Knowledge and Ability	Effect of heavy metals on algae	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Fifteenth	1:1	Exam			
Sixteenth	2	Knowledge and Ability	General stool analysis and stool culture	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Seventeenth	2	Knowledge and Ability	API test	Whiteboard, presentation and video lectures	Daily exam, questions and discussions

Eighteenth	2	Knowledge and Ability	Sustainability and utilization of algae in its applications Algal Phenols and alkaloids	Whiteboard, presentation questio	Daily exam, questions and discussions
Nineteenth	Application in schools				
Twentieth	Application in schools				
Twenty first	Application in schools				
Twenty second	Application in schools				
Twenty third	Application in schools				
Twenty fourth	Application in schools				
Twenty fifth	2	Knowledge and Ability	Algal bioplastic production	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty sixth	2	Knowledge and Ability	Methods for identifying active compounds in extracts	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty seventh	2	Knowledge and Ability	Spinal fluid analysis	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty eighth	2	Knowledge and Ability	ASO = Anti Streptolysin O ti analysis	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Twenty nineth	2	Knowledge and Ability	Nanotechnology and Algae	Whiteboard, presentation and video lectures	Daily exam, questions and discussions
Thirtieth	2	Knowledge and Ability	Widal Test	Whiteboard, presentation and video lectures	Daily exam, questions and discussions

11. Course Evaluation and Marks

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

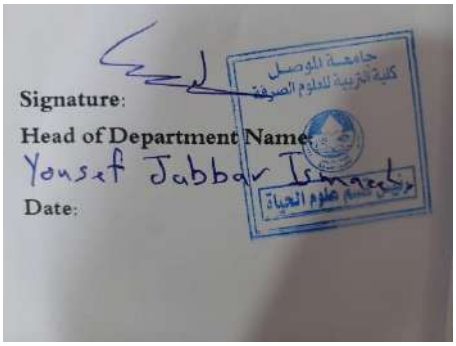
Required textbooks (curricular books, if any)	
Main references (sources)	Botany-Algae/Vashishta et al.2012 • Microalgae-Biotechnologyand • Microbiology/E. W. Becker2008 Algal Biotechnology and • Environment/Dinabandhu Sahoo and B. D, Kaushik/2012 Biodiesel/A.Barker-2010 • BIORESOURCES AND BIOPROCESS IN • BIOTECHNOLOGY FOR A SUSTAINABLE FUTURE/ Torre et al. ,2024 Cyanobacterial Biotechnology in the 21st • Century/Neilan et al.,2023 • The summit book in pathological analyses Written by Dr. Ramadan Muhammad Salman • Pathological Analysis Book (Ashour Kamel Al Nuaimi)

	• Comprehensive medical analysis (Ahmed Kamel Abdel Hafeez
Recommended books and references (scientific journals, reports…)	Seha Platform (Saudi Arabia): Provides a guide to labora tests. The Ministry of Health website in Arab countries, such as Egypt and the UAE, often provides guidance on patholog tests. The Annual Conference of the Arab Society of Med Laboratories
Electronic References, Websites	• Lab Tests Online: labtestsonline.org • For laboratory tests) (Simplified explanation) • Medscape Pathology: Recent articles and news. • PubMed: pubmed.ncbi.nlm.nih.gov (Database of scientific research). •
Percentage of Curriculum update	27%

of Curriculum Administrator

Assist. Prof. Dr. Mira Ausama Ahmed/ Biotechnology

L.D. Nawar Talal Hamed/ Microbiology



Name and Signature

of Department or Branch Head

Course Description Form

University: Mosul **College:** Education for Pure Science **Department :**Biology

1. Course Name and Stage:
Virology/ Fourth stage
2. Course Code:
FDB125F404
3. Semester / Year:
First and second / 2024-2025
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
In-person and electronic
6. Number of Credit Hours (Total) / Number of Units (Total)
2/2
7. Course administrator's name (mention all, if more than one name) and Scientific title
Name: Prof. Dr. Jamella Hazaa Rasheed Email: dr.jamella.h.rasheed@uomosul.edu.iq Name: Prof. Dr. Najwa Ibrahim Khaleel Email: dr.najwa@uomosul.edu.iq
8. Course Objectives

Subject Objectives	• Providing the student with information and academic aspects related to viruses in general. • Studying the genetic structure of viruses and their methods of reproduction. • Introducing the student to the naming and classification systems for viruses.

9. Teaching and Learning Strategies	
Strategy	Theoretical lecture, dialogue and discussions, problem solving, reports and daily assignments.

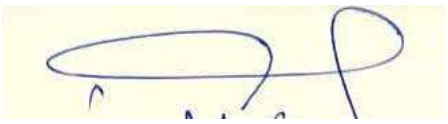
10. Course Structure

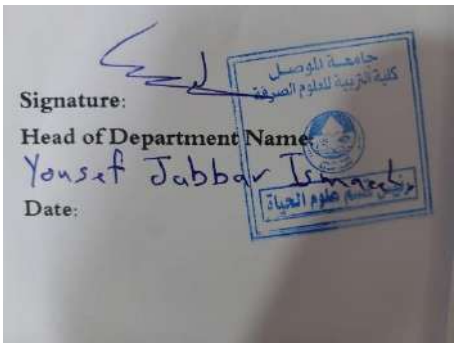
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	knowledge and skill	Ageneral introduction the world of viruses virions and the diagnosi plant viruses.	Whiteboard, presentation, and video lectures	Daily exams
2	2	Knowledge and skill	Virus Naming	Whiteboard, presentation, and video lectures	Daily exams

3	2	Knowledge and skill	Viral Infection andVirus Movement Within Plants	Whiteboard, presentation, and video lectures	Daily exams
4	2	Knowledge and skill		Whiteboard, presentation, and video lectures	Daily exams and preparing reports
5	2	Knowledge and skill	Epidemiology and ecol of plant viruses and p response to virus infection	Whiteboard, presentation, and video lectures	Homework
6	2	Knowledge and skill	Bacteriophages	Whiteboard, presentation, and video lectures	Daily exams, Reparing reports, homework
7	2	Knowledge and skill	Using bacteriophage to transf genetic material between bacteria	Whiteboard, presentation, and video lectures	Daily exames
Mid exam					
8	2	Knowledge and skill	The chemical composition of viruses	Whiteboard, presentation, and video lectures	Daily exams, Reparing reports, and homework
9	2	Knowledge and skill	The most important differences between bacteria and viruses	Whiteboard, presentation, and video lectures	Homework
10	2	Knowledge and skill	The occurrence reproduction of viral infections	Whiteboard, presentation, and video lectures	Daily exams, Reparing reports, and homework
11	2	Knowledge and skill	Types of phages that in bacteria that pathogenic to humans	Whiteboard, presentation, and video lectures	Daily exams, Reparing reports, and homework
12	2	Knowledge and skill	Virus culture and propagation in the laboratory	Whiteboard, presentation, and video lectures	Homework
13	2	Knowledge and skill	COVID-19 virus/measles/what virus is, how it spreads symptoms, and prevent methods	Whiteboard, presentation, and video lectures	Daily exams and Homework
14	2	Knowledge and skill	Recent studies on importance of Viruses (beneficial viruses)	Whiteboard, presentation, and video lectures	Homework
15	2	Knowledge and skill	SARS/Ebola/polio virus/symptoms, complications, prevention and treatm methods	Whiteboard, presentation, and video lectures	Homework
Final exam					

11. Course Evaluation and Marks

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 any)	-------
Main references (sources)	1- Nomenclature and Classification of Plant Viruses (Dr. Nabil Aziz Qasim, 2014). 2- Plant Viruses (Abdul Latif Bahjat, 2010). 3- Human Virology (John Oxford et al., 2020).
Recommended books and references (scientific journals, reports…)	Virology, Khaled Ali Al-Mahdawi, Third Edition, 2022, Benghazi, Libya.
Electronic References, Websites	https://www.jfmed.uniba.sk/fileadmin/jlf/Pracoviska/ustav-mikrobiologie-a-imunologie/distancna_vyuka/ang_12_lect_viruses.pdf
Percentage of Curriculum update	40%





Name and Signature

of Curriculum Administrator

Prof. Dr. Jamella Hazaa Rasheed

Prof. Dr. Najwa Ibrahim Khaleel

Name and Signature

of Department Head

Prof. Dr. Yousif Jabar Ismaeel

Course Description Form

1. Course Name: Elective/ Sustainable Bioenergy

2. Course Code: **EDI25F404**

3. Semester / Year: 2024-2025

4. Description Preparation Date: 1/9/2024

5. Available Attendance Forms: Laboratory , Classroom

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

2h. / 2Unit

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

1- Dr. Taha Abdullwahab Khamees Email: dr.tahaalamawni19@uomosul.edu.iq
2- Dr. Mohammed Abdulilah Mohammed Email: dr.mohammedsh@uomosul.edu.iq

8. Course Objectives

Course Objectives	**• Learn about the basic principles of sustainable bioenergy** **• Learn about the practical applications of sustainable bioenergy**

9. Teaching and Learning Strategies

Strategy	Theoretical and practical lectures, dialogue and discussions, problem solving, reports and daily assignments..

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
first	2	Understanding the basic principles of energy	Meaning and concept of energy	lecture	Daily exams
Second	2	Understanding the basic principles of energy	The relationship between bioenergy and renewable energy	Lecture	Daily exams
Third	2	Understanding the basic principles of sustainable energy	The relationship of bioenergy to sustainable development goals	Lecture	Daily exams
Fourth	2	Understanding the basic principles of energy	Sustainable Development Goals	Lecture	Daily exams, reports and homework
Fifth	2	Understanding the	Energy Fluidity	Lecture	Homework

		basic principles of energy			
Sixth	2	Understanding the basic principles of biofuels	Biofuel concept	Lecture	Daily exams, reports and homework
Seventh	2	Understanding the basics	Types of biofuel	Lecture	Daily assignments
Eighth	2	Understanding the basic principles	Biofuel generations	Lecture	Daily exams, reports and homework
Nineth	2	Understanding the Basics of First Generation	First Generation Biofuels	Lecture	Homework
Tenth	2	Understanding the basic principles	Introducing some sources of ethanol and biodiesel production.	Lecture	Daily exams, preparing reports and homework.
Eleventh	2	Understanding the Basic Principles of Second Generation	Second Generation Biofuels	Lecture	Daily Exams, Report Preparation and Homework
Twelfth	2	Understanding the Basics	Identifying some sources of second generation biofuel production	Lecture	Homework
Thirteen	2	Understanding the Basic Principles of Third Generation	Third Generation Biofuels	Lecture	Daily Exams and Homework
Fourteenth	2	Practical application of the law	Definition of some sources of production of third generation biofuels	Lecture	Homework
Fifteenth	2	Understanding the basic principles of growth systems	Algae production and growth systems and conditions	Lecture	Working a report on animal tissues
Sixteenth	2	Understanding the Basics	4th Generation Biofuels and their Relationship to 3rd Generation Biofuels	Lecture	Daily Exams, Reports and Homework
Seventeenth	2	Understanding the Basics	Jatropha the Fuel of the Future	Lecture	Daily exams
Eighteenth	2	Understanding the basic principles of biogas	Biogas Methane gas as a model	Lecture	Daily exams and homework
Nineteenth	2	Understanding the Basics	Biohydrogen Gas	Lecture	Daily exams

Twentieth	2	Understanding the basic principles	Modern trends in bioenergy production	Lecture	Homework
Twenty first	2	Understanding the Basics	Production of Electricity from Algae and Microbes	Lecture	Daily exams
Twenty second	2	Understand the basic principles of the subject	Biofuels and Climate Change	Lecture	Homework

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, and reports

12. Learning and Teaching Resources

Required textbo (curricular books, any)

1- Abu Al-Naja, Hamdi (2011). Biofuel Production - Advantages - Risks - Uses - Environmental and Developmental Impacts. Academic Library for Publishing, Egyptian Joint Stock Company, Arab Republic of Egypt. P: 82.

2- Al-Hussaini, Ahmed Eidan (2017). Algae in Iraq, their environment and classification. Science Series / General Directorate of Cultural Affairs - Ministry of Culture / Baghdad / Republic of Iraq. P: 396.

3- Saadoun, Donia Attia (2018). Ethanol from Sugarcane: The Brazilian Biofuel Success Story. Translated article from Waste Management.

4- Al-Sheikh, Fathallah and Ahmed Al-Samahi (2017). Biofuels and the Globalization of Risks - The Greatest Change in North-South Relations Since Colonialism. Translated, Publisher: National Center for Translation, Cairo, Arab Republic of Egypt, p. 238.

5- Al-Sumaidaie, Taha Abdul-Wahab Khamis (2020). Investigation of biofuel from some microalgae using protoplast isolation and fusion technology. PhD thesis, University of Mosul, Republic of Iraq. P: 176.

6- Al-Sumaidaie, Kazem Mohammed and Qais Jameel Al-Salihi (2017). Plant Biotechnology. Translated/ University of Alnahrain/ Baghdad/ Iraq. P: 365.

7- Abdul Wahab, Barween Ahmed Hassan (2016). Biofuel. Journal of Educational Studies. Issue (33). December. Pp: 119-128.

8- Arafat, Hassan and Pirani, Sanaa (2017). Capacity Building for ESCWA Member Countries to Address the Water-Energy Nexus to Achieve Sustainable Development Goals - Water-Energy Nexus Operational Toolkit Renewable Energy Model - Economic and Social Commission for Western Asia. pp: 1-73.

9- Ali, Obaid Majeed (2017). Study of biofuel production from cotton seeds and its use as an alternative to diesel fuel. Anbar Journal of Engineering Sciences, Volume 7, Issue 2. Pp: 113-119.

10- Al-Awdat, Muhammad (2000) Ecosystem and Pollution. Publisher: King Abdulaziz City for Science and Technology / Kingdom of Saudi Arabia. P: 4

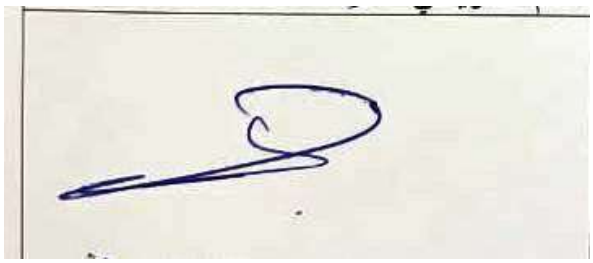
11- Al-Fayyad, Musa and Abeer Abu Rman (2009) Biofuel – Prospects, Risks and Opportunities. National Center for Agricultural Research and Extension/ Hashemite Kingdom of Jordan/ p: 15.

12- Mustafa, Samir Saadoun and Nasser, Bilad Abdullah and Salman, Mahmoud Khader (2012). Alternative Energy - Its Sources and Uses. Al-Yazouri Publishing and Distribution House, Abdali - Hashemite Kingdom of Jordan. P: 202.

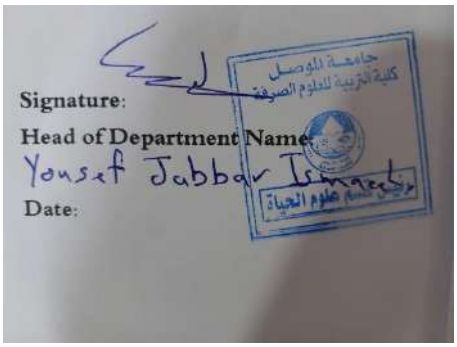
13- Wilkinson, John, Seria Afif and Carles Gimbi (2013). Biofuels and Food Security, Food Security and Nutrition Report/Committee on World Food Security. p: 34.

Main referen (sources)	
Recommended books and references (scientific journals, reports…)	1- Badr, Omar Ahmed, Wagih Abdel Aziz Farag and Naglaa El Sayed Ahmed Shaaban (2018). Biofuel (diesel) production in the world and its impact on the prices of Egyptian imports of vegetable oils. Egyptian Journal of Research. Volume 96, Issue (4). Pp: 1689- 1702. 2- Al-Ghaish, Azmy Mohamed Abdel Jalil (2019). The impact of the expansion of the biofuel industry on food security. Journal of Sharia and Law, Issue 34, Pp: 1-88. 3- Al-Mashat, Bassam bin Hussein (2011). Biofuel Production and Sustainable Development, Saudi Journal of Biological Sciences. Volume 18, Issue 5, p: 15. 4- Abdullah, B.; Muhammad, S. A. F. S.; Shokravic, Z.; Ismail, S.; Kassime, A.; Mahmood, A. N. and Azize, M. A. (2019). Fourth generation biofuel: A review on risks and mitigation strategies, 107. pp: 37-50. https://doi.org/10.1016/j.rser.2019.02.018 5- Abdullaha, B.; Muhammad, S. A. F. S.; Shokravic, Z.; Ismail, S.; Kassime, A.; Mahmood, A. N. and Azize, M. A. (2019). Fourth generation biofuel: A review on risks and mitigation strategies, 107. pp: 37-50. https://doi.org/10.1016/j.rser.2019.02.018 6- Alalwana, H. A.; Alminshid, A. H. and Aljaafari, H. A. S. (2019). Promising evolution of biofuel generations. Renewable Energy Focus, 28. pp: 127-139. 7- Aron, N. S. M. ; khool, K.S.; Chew, K. W.; Show, P. L.; Chen, W. H. and Nguyen, H. P. (2020). Sustainability of the four generations of biofuels– A review. Inte. J. of Energy Research, 44, 12. pp: 1-17. 8- Dragone, G. ; Fernandes, B. ; Vicente, A. A. and Teixeira, J. A. (2010). Third generation biofuels from microalgae. Chapter In: Current research, technology and education topics in applied microbiology and microbial biotechnology. Formatex Research Center . pp: 1354-1366. 9- Dutta, K.; Daverey, A. and Lin, J.G.(2014). Evolution retrospective for alternative fuels: First to fourth generation. Renewable Energy, 69. pp: 114-122. 10-Lu, J.; Con S. and Pengcheng F. (2011). Metabolic engineering of algae for fourth generation biofuels production. Energy Environ. Sci., 4, pp: 2451–2466. 11-Lwo, B. J.; Manovic, V and Longhurst, P. (2016).Renewable and Sustainable Energy Reviews63, PP:172–192. 12-Matabanchoy-Mesias, Y.d. S. ; Rodríguez-Caicedo, Y. A. and Marco, A. I. F. (2020). Population growth of Chlorella sp. in three types of tubular photobioreactors, under laboratory conditions. AACL Bioflux, 13, 4, pp:2094-2106. http://www.bioflux.com.ro/aacl 13-Płaczek, M. ; Patyna A. and S. Witczak (2019). Technical evaluation of photobioreactors for microalgae cultivation. E3S Web of Conferences 19, 02032. DOI: 10.1051/e3sconf/20171902032 14-Saad, M. G. ; Dosoky, N. S. ; Zoromba, M. S. and Hesham M. S. (2019). Algal Biofuels: Current Status and Key Challenges. Energies, 12, PP:1-22. doi:10.3390/en12101920 15-Saha, S.; Sharma, A. ;Purkayastha, S.; Pandey, K. and Dhingra, S. (2019). Bio-plastics and Biofuel: Is it the Way in Future Development for End Users. Plastics to Energy. pp: 365-376. https://doi.org/10.1016/B978-0-12-813140-4.00014-5 16-Shokravi, Z. ; Shokravi, H.; Aziz, M. A. and Shokravi, H.(2019). The Fourth – Generation Biofuel: A systematic Review on Nearly Two Decades of Research from 2008 to 2019. Chapter 12 In: Fossil Free Fuels Trends in Renewable Energy. pp: 213-251. 17-Srivastav, D. ; Singh, P. A. and Kumar, A. (2014). Fossil Fuels Running out: Third Generation Micro Algal Biofuels Showing Light of Hope. Open Access Library Journal, 1:e707. pp:1-10. DOI:10.4236/OALIB.1100707 18-Vignesha, N. S.; Vimalia, E.; Sangeethaa, R.; Arumugam, M.;Ashokkumara, B.; Ganeshmoorthyc, I. and Varalakshmi, P.(2020). Sustainable Biofuel from Microalgae: Application of lignocellulosic wastes and bio-iron nanoparticle for biodiesel production. Fuel, 278 (2020) 118326. revised 24 May 2020; Accepted 5 June 2020.

	https://doi.org/10.1016/j.fuel.2020.118326 19-Yusoff, F. M. ; Nagao, N. ; Imaizumi, Y. and T. Toda (2019). Bioreactor for Microalgal Cultivation Systems: Strategy and Development. Chapter In: Prospects of Renewable Bioprocessing in Future Energy Systems. Publisher in Springer, Cham pp:117-159. DOIhttps://doi.org/10.1007/978-3-030-14463-0_4
Electronic Referen Websites	
Percentage Curriculum update	



Dr. Taha Abdullwahab Khamees
Dr. Mohammed Abdelilah Mohammed



Name and signature of curriculum Administrator

Name and signature of Department or Branch Head

Course Description Form

University: Mosul College: Education for Pure Science
Department or Branch: Biology Department

1. Course Name Stage/: Natural products / optional- Fourth Class
2. Course Code: EDBI25F404
3. Semester / Year: 2024-2025
4. Description Preparation Date: 1/9/2024
5. Available Attendance Forms: Classroom, Electronic class
6. Number of Credit Hours (Total) / Number of Units (Total): 2hours/2 units
2 hours/ 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Muthanna Jassim Muhammad , dr.muthanna.j.m@uomosul.edu.iq
8. Course Objectives

Course Objectives	Gain insight into the fundamental principle of natural products expand understanding regarding medicina plants and their inherent constituents Explore the diverse applications of medici plants across various domains.

9. Teaching and Learning Strategies

Strategy	Theoretical lecture, dialogue and discussions, proble solving, reports and daily homework

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

First	2	Identify medicinal plants	Medicinal plants	Lecture	Quiz,report homework
Second	2	Understanding methods of reproduction of medicinal plants	Methods of multiplying medicinal plants	Lecture	Quiz,report homework
Third	2	Learn about the ecology of medicinal plants	Adaptation of medicinal plants to the desert environment	Lecture	Quiz,report homework
Fourth	2	Identify the varieties and families of medicinal plants	Classification of medicinal plants	Lecture	Quiz,report homework
Fifth	2	Learn how to harvest	Harvesting medicinal plants	Lecture	Quiz,report homework
Sixth	2	Identify drying requirements	Drying medicinal plants	Lecture	Quiz,report homework
Seventh	2	Understand the storage process	Store medicinal plants	Lecture	Quiz,report homework
Eighth	2	Identify the types of proteins	Proteins	Lecture	Quiz,report homework
Nineth	2	Identify the types of lipids	Lipids	Lecture	Quiz,report homework
Tenth	2	Identify the types of carbohydrates	Carbohydrates	Lecture	Quiz,report homework
Eleventh	2	Identify the types of phenols	Phenols	Lecture	Quiz,report homework
Twelfth	2	Identify medicinal plants	Alkaloids	Lecture	Quiz,report homework
Thirteen	2	Identify the types of alkaloids	Terpenes	Lecture	Quiz,report homework
Fourteenth	2	Identify the types of terpenes	Glycosides	Lecture	Quiz,report homework
Fifteenth	2	Identify the types of glycosides	Volatile oils	Lecture	Quiz,report homework

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)	There are no systematic books, but there are some external books, such as the book on natural products
Main references (sources)	Dewick, P. M. (2002). *Medicinal natural products: a biosynthetic approach*. John Wiley & Sons
Recommended books and references (scientific journals, reports…)	Newman, D. J., & Cragg, G. M. (2020).Natural products as sources of new drugs over the nearly four decades from 01/1981 to 09/2019. *Journal of natural products, 83*(3), 770-803.

Electronic References, Websites	Cragg, G. M., & Newman, D. J. (2013). Natural products: a continuing source of novel drug leads. *Biochimica et Biophysica Acta (BBA)-General Subjects*, *1830*(6), 3670-3695.
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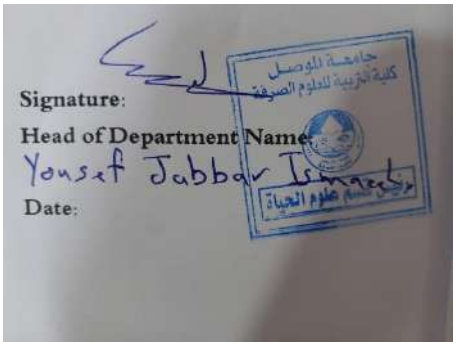

Prof. Dr. Muthanna J. Mohammed

Name and Signature

of Curriculum Administrator

Name and Signature

of Department or Branch Head