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

University of Anbar
Educational Collage for Pure Sciences
Biology Department

2024

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

Academic Program Description Form

University Name: University Of Anbar

Faculty/Institute: College of Education for Pure Sciences

Scientific Department: Department of Biology

Academic or Professional Program Name: Biology Education

Final Certificate Name: Bachelor's degree in biology Education

Academic System: Semester

Description Preparation Date: 1/3/2024

File Completion Date: 1/3/2024

Signature:

Head of Department Name:

Dr. Luay Hatem Ali

Date: 1/3/2024

Signature:

Scientific Associate Name:

Dr. Harith Kamil Bani

Date: 1.3.2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Dr. Feras Shaker Mahmoud

Date: 1/3/2024

Signature:

كلية التربية للعلوم الصرفة
جامعة الانبار
قسم علوم الحياة

Approval of the Dean

Prof.Dr. Abdul Rahman Salman Juma

1/3/2024

1. **Program Vision**
Program vision is written here as stated in the university's catalogue and website.

2. **Program Mission**
Program mission is written here as stated in the university's catalogue and website.

3. **Program Objectives**
General statements describing what the program or institution intends to achieve.

4. **Program Accreditation**
We seek to prepare highly qualified graduates who are qualified to work in the fields of life sciences in its various branches.

5. **Other external influences**
The department aims to spread awareness and knowledge in the fields of life sciences by providing the country with researchers and professors capable of dealing with the recent changes and developments taking place in the world and contributing to the development of our scientific, health, industrial and environmental institutions in solving the problems that obstruct their progress.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	٨	١٦	%١١	
College Requirements	١١	٢٢	%١٥	
Department Requirements	٣٤	٩٤	%٦٣	
Summer Training	٠	٠	٠	
Other	٧	١٦	١١	

* 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	BIO121	Basics of zoology	2	2
	BIO122	Cell science 1	1	2
	CHE111	Analytical chemistry	2	2
	UOA137	Arabic	2	-
	AGES101	Earth science	2	-
	UOA135	human rights	1	-
	EPS101	Educational psychology	2	-
	BIO128	Basics of botany	2	2
	BIO129	Cell science 2	1	2
	CHE121	organic chemistry	2	2
	UOA140	English	2	-
	UOA141	Calculators	2	2
	UOA136	Freedoms	2	-
	EPS102	Foundations of education	2	-
Second	BIO235	No vertebrates 1	2	2
	BIO236	Histology	2	2
	BIO237	Comparative plant anatomy	2	2
	BIO238	Algae science	2	2
	BIO239	Scientific research method	2	-
	EPS202	Developmental psychology	2	-
	UOA140	English	2	-
	BIO241	No vertebrates 2	2	2
	BIO242	Embryology	2	2
	BIO243	Biochemistry	2	2
	BIO244	Archaiconia	2	2
	BIO245	Life statistics	2	-

	EPS201	educational administration	2	-
Third	BIO347	General insects	2	2
	BIO348	Chordates and comparative anatomy	2	2
	BIO349	Genetics-1	2	2
	BIO350	Microbiology	2	2
	BIO351	Plant morphology	2	2
	BIO352	Microscopic preparations	1	2
	EPS311	Curricula and teaching methods	2	-
	BIO354	Applied insects	2	2
	BIO355	Fungi	2	2
	BIO356	Plant classification	2	2
	BIO357	Life technology	2	2
	BIO358	Faslaja is an animal	2	2
	BIO359	Genetics-2	2	2
	EPS312	Counseling and mental health	2	-
	UOA140	English	2	-
Fourth	**BIO461**	Parasites-1	2	2
	BIO462	Applied bacteriology	2	2
	BIO463	Phosphorus is a plant	2	2
	BIO464	Ecology	2	2
	BIO465	Molecular biology	2	2
	EPS411	Measurement and evaluation	2	-
	EPS412	Teaching applications	2	-
	UOA140	English	2	-
	BIO469	Parasites-2	2	2
	BIO470	environmental pollution	2	2
	BIO471	Immunology	2	2
	BIO472	Public Health	2	-
	BIO474	Cellular metabolism	2	2
	BIO473	Optional	2	-
	EPS413	School applications	-	4
	EPS414	Graduation Project	-	6

8. Expected learning outcomes of the program

Knowledge

1. The student will have the ability to know and understand the principles, theories and basics in the life sciences.

2. The student will have the ability to understand modern and advanced scientific topics in the field of life sciences.

3. The student will be able to understand the basics of the operation of laboratory equipment

used in examination and evaluation. **4. The student's knowledge of measurement and evaluation methods and modern teaching methods in the life sciences. In addition to enabling the student to know the learning theories relevant to the students' ages for the secondary school stage.**
Ethics **1. Gain knowledge and enrich the student with laboratory work methods.** **2. Directing the student to the scientific method in solving all scientific problems.** **3. Knowing the goals and principles of the art of teaching life sciences.** **4. Enabling students to acquire the skills of using virtual classrooms.**

9. Teaching and Learning Strategies

1. The method of listening and thinking deeply in order to understand the problem in order to solve it.
2. The method of scientific discussion and purposeful dialogue.
3. Adopting the method of monthly and final examinations and submitting weekly reports.

10. Evaluation methods

1. Treatment method using final grades.
2. Random and surprise tests.
3. Educational tasks in virtual classrooms.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
professor	Biology	Microbiology			√	

professor	Biology	Animal Physiology			√	
professor	Biology	heredity			√	
professor	Biology	parasites			√	
Assistant Professor	Biology	Genetic Engineering			√	
Assistant Professor	Biology	Assistant Professor			√	
Assistant Professor	Biology	Animal tissues			√	
Assistant Professor	Biology	Animal Physiology			√	
Assistant Professor	Biology	environment			√	
Assistant Professor	Biology	Phosphorus is a plant			√	
Assistant Professor	Biology	Biotechnology			√	
Assistant Professor	Biology	Animal Physiology			√	
Lecturer	Biology	Chordates and comparative anatomy			√	
Lecturer	Biology	Cellular genetics			√	
Lecturer	Biology	environment			√	
Lecturer	Biology	Plant classification			√	
Lecturer	Biology	Plant classification			√	
Lecturer	Biology	Life sciences			√	
assistant teacher	Biology	Life sciences			√	
Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	

assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Life sciences			√	
assistant Lecturer	Biology	Microbiology			√	

Professional Development
Mentoring new faculty members
Orienting new faculty members
Professional development of faculty members
1. That the student benefits from learning and embodying this in his personal and professional development. 2. That the student can employ the knowledge he receives during the study stage. 3. That the student benefits from theoretical knowledge in employing the teaching profession and mastering it in a manner based on the basic concepts in teaching life sciences. 4. Skills of modern technologies in communications, documentation and communication.

12. **Acceptance Criterion**
1. Acceptance according to the general and central average system. **2. Admission to departments according to the student's desire and modified.** **3. The condition must be for graduates of preparatory studies and the scientific stream exclusively."** **4. The accepted student's personal and mental safety and freedom from physical disabilities**

13. **The most important sources of information about the program**
1. Methodological books approved by the sectoral committee for colleges of education for pure sciences. 2. Helping books. 3. Books and archaeological sources / sources in English. 4. Additional sources from the Internet. 5. Training courses held by the university on e-learning platforms.

14. Program Development Plan
1. Using modern scientific sources. 2. Using high-speed communication networks to transfer information, such as the Internet. 3. Visits and practical practices in service laboratories. 4. Acquiring modern scientific expertise and skills in the field of modern technical communication

Course Description Form

1. Course Name:	
Phycology	
2. Course Code:	
BIO238	
3. Semester / Year: first	
first semester/2023−2024	
4. Description Preparation Date:	
12.11.2023	
5. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hr./ 2Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. farkad hawas musa Email: farqad.hawas@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	A. Introducing the student to the science of algae, their types, the environments in which they live, and their importance B. Preparing university teachers who possess the educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educational metho for teaching biology and science
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives A1- The student's ability to discern, cognitive perception and modern practical research methods . A2- Provide the student with knowledge and understanding of the main principles of phycology. A3- Introducing the student to modern techniques in the study of phycology and the basic methods of distinguishing between different species.

	B - The skills objectives of the course. B1- The student should be able to distinguish between the different genus. B2- Providing the student with knowledge of how to prepare genus slides and describe and distinguish species. B3- Providing the student with the skill of linking the theoretical and practical part of the scientific material

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
Short questions	Lecture + laboratory	General characteristics of algae, definition, and general importance	Introduction to phycology	1 theoretical ٢ practical	**the first**
A comparison between the types of tissues	Lecture + laboratory	Main phylum of algae	Classification of Algae	1 theoretical ٢ practical	**the second**
Short questions	Lecture + laboratory	Structure of algal cells and tissues	Knowledge of the structure of algae	1 theoretical ٢ practical	**the third**
Homework	Lecture + laboratory	The main characteristics of Blue- green algae with samles	Cyanophyta	1 theoretical ٢ practical	**the fourth**
Short questions	Lecture + laboratory	The main characteristics of green algae, with samples	Chlorophyta	1 theoretical ٢ practical	**Fifth**
Short questions	Lecture + laboratory	The main characteristics of Chara	Charophyta	1 theoretical ٢ practical	**Sixth**
Electronic test (various questions)		Semester test 1		1 theoretical ٢ practical	**Seventh**
Writing a	Lecture +	The main	Euglenophyta	1 theoretical	**Eighth**

report on preparing a tissue sample	laboratory	characteristics , with samples		٢ practical	
Short questions	Lecture + laboratory	The main characteristics , with samples	Pyrrophyta	1 theoretical ٢ practical	**Ninth**
Short questions	Lecture + laboratory	The main characteristics , with samples	Chrysophyta	1 theoretical ٢ practical	**The tenth**
Short questions	Lecture + laboratory	The main characteristics , with samples	Bacillariophyta	1 theoretical ٢ practical	**eleven th**
Short questions	Lecture + laboratory	The main characteristics , with samples	Xanthophyta	1 theoretical ٢ practical	**twelve th**
Short questions	Lecture + laboratory	The main characteristics , with samples	Rhodophyta	1 theoretical ٢ practical	**Thirte enth**
Short questions	Lecture + laboratory	The importance of algae	Applied of phycology	1 theoretical ٢ practical	**fourte enth**
Various questions		Semester test 2		1 theoretical ٢ practical	**Fiftee nth**

11. Course Evaluation

Daily and monthly and final exams
With the student performing the practical aspect in laboratory along with homework assignments

12. Learning and Teaching Resources

Required textbooks (curricular books any)	١- مولود ، بهرام خضر ، الطحالب والاركيكونيات (١٩٩٠). وزارة التعليم العالي والبحث العلمي – الجمهورية العراقية. ٢- مولود، بهام خضر ، علم الطحالب العملي(١٩٩٠) جامعة بغداد
Main references (sources)	سام، احمد ناظم، علم النباتات اللازهرية (٢٠٠٤).
Electronic References, Websites	https://fac.ksu.edu.sa/sites/default/files/lthdyrt_lmjhry_ljz_lthr

	pdf

Course Description Form

1. Course Name:
Mycology
2. Course Code:
Bio 355
3. Semester / Year: Second
Second semester/2023−2024
4. Description Preparation Date:
1/2/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. farkad hawas musa Email: farqad.hawas@uoanbar.edu.iq Name: Assist. Instructor Mustafa mezban mohammed Mostafamizban71@uoanbar.edu.iq
8. Course Objectives

Course Objectives	
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. Providing the student with some of the necessary methods in the process of diagnosing fungi. 2. Giving the student the ability to diagnose diseases resulting from fungal infection 3. Identify the distinctive characteristics of each fungal disease.

	4. Providing the student with the ability to diagnose fungal diseases

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
questions and answers	Theoretical + practical	Definition of fungi + laboratory equipment, chemicals, and media used	A general introduction to fungi, general features of fungi, and the economic importance of fungi	2 Theoretical + 2 practical	١
questions and answers	Theoretical + practical	Classification fungi	The external appearance of the fungus	2 Theoretical + 2 practical	٢
questions and answers	Theoretical + practical	Methods of isolating fungi and sources of isolation	Types of reproduction in fungi	2 Theoretical + 2 practical	٣
questions and answers	Theoretical + practical	Study and examination of the types of spores and hyphae in fungi	Reproductive organs and methods of sexual reproduction	2 Theoretical + 2 practical	٤
questions and answers	Theoretical + practical	Classification of fungi	Methods of nutrition in fungi	2 Theoretical + 2 practical	٥
Short questions	Theoretical + practical	General features of the phylum Plasmodiophoromycota	Division of fungi	2 Theoretical + 2 practical	٦
Short questions	Theoretical + practical	Plasmodiophoroaceae General features of the family	Protista	2 Theoretical + 2 practical	٧
homework	Theoretical + practical	General features of the phylum	Stramenopila	2 Theoretical + 2 practical	٨

		Stramenopila			
questions and answers	Theoretical + practical	True Fungi General Features	True Fungi	2 Theoretical + 2 practical	٩
questions and answers	Theoretical + practical	characteristics of Phytophthora sp.	Blastocladiomycota	2 Theoretical + 2 practical	١٠
Electronic test with various questions	Theoretical + practical	Glomeromycota general features and identification of some genera	Glomeromycota	2 Theoretical + 2 practical	١١
questions and answers	Theoretical + practical	Zygomycota General features of the phylum	Zygomycota	2 Theoretical + 2 practical	١٢
questions and answers	Theoretical + practical	Ascomycota general features and identification of some genera of the phylum	Ascomycota	2 Theoretical + 2 practical	١٣
questions and answers	Theoretical + practical	General features of the phylum and identification of some of its genera	The ancient division and modern division of the kingdom	2 Theoretical + 2 practical	١٤
questions and answers	Theoretical + practical	A comparison between ancient and modern classifications of fungi	Pezizomycotina	2 Theoretical + 2 practical	١٥

11. Course Evaluation

Daily and monthly and final exams
With the student performing the practical aspect in laboratory along with homework assignments

12. Learning and Teaching Resources

Required textbooks (curricular books any)	مقدمة في علم الفطريات

Main references (sources)	فياض محمد شريف ٢٠١٩ / امراض النبات الفطرية فياض محمد شريف / بيئة الفطريات محمد علي احمد / مملكة الفطريات
Electronic References, Websites	https://fac.ksu.edu.sa/sites/default/files/lthdyrt_lmjhry_ljz_lth

Course Description Form

1. Course Name:
Chordate
2. Course Code:
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Bakaa Hazim esmail Email: bakaa.hazim@uoanbar.edu.iqdu.iq Name: Assist. Instructor. Oqba abdul alhalem abdul aljabar Email: oqbaalhadethe@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Introducing the student to CHORDATA, Introducing the student to chordates, their classification, installation of devices and their functions. B. Preparing university teachers who possess educational skills to teach chordates C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educatio methods for teaching the subject of chordate science
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture

	5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the distribution of random variables and using them in the practical aspect
	ing the student with knowledge related to the study of chordata
	ing the student with knowledge of the types of chordata and their heir re and shapes

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	An overview of the types and shapes of chordates	introduction to chordates.	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Classification of chordates and their general features	introduction to chordates.	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	its structure, and a comparison between the types of chordates	The integumentary system	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	its sections, and a comparison between types	The digestive system	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show		First month exam	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	its parts, and a comparison between types	The urinary system	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	its parts, and a comparison between species	The male reproductive system	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	its parts, and a comparison between species	The female reproductive system,	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	٩

motivational questions	Blackboard and data show	Review	review	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Expectation and conditional variance.	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The properties of expectation,	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions	Understand the lecture topic	2 Theoretical + 2 practical	١٤
motivational questions with the grade	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	٣- Verma, P. S. (2010). *Chordate zoology*. S. Chand Publishing.
Main references (sources)	4-
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Endocrinology
2. Course Code:
3. Semester / Year:
Second semester/2023−2024
4. Description Preparation Date:
1/2/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Bakaa Hazim esmail Email: bakaa.hazim@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: Introducing the student to Endocrinology, Its composition, function and benefits B. Preparing university teachers with educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate teaching aids f teaching biology and sciencelife
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment

	B - The skills objectives of the course. D3- The skill of knowing the degree of correlation between variables D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to develop himse

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Introduction to endocrine glands.	An overview of the types of endocrine gland	Introduction to endocrine glands.	١
motivational questions	Blackboard and data show	Hypothalamus	Its composition and types of hormones it secretes	Hypothalamus	٢
motivational questions	Blackboard and data show	pituitary gland	Its composition and types of hormones it secretes	pituitary gland	٣
motivational questions	Blackboard and data show	pituitary gland	Its composition and types of hormones it secretes	pituitary gland	٤
motivational questions	Blackboard and data show	First month exam		First month exam	٥
motivational questions	Blackboard and data show	Thyroid and parathyroid glands	Its composition and types of hormones it secretes	Thyroid and parathyroid glands	٦
motivational	Blackboard	Adrenal gland	Its composition	Adrenal gland	٧

questions	and data show		and types of hormones it secretes		
motivational questions	Blackboard and data show	Gonads	Its composition and types of hormones it secretes	Gonads	٨
motivational questions	Blackboard and data show	Semester test	Semester test	Semester test	٩
motivational questions	Blackboard and data show	Review	review	review	١٠

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)	• Kleine, B., & Rossmanith, W. G. (2016). Hormones and the endocrine system. *Cham: Springer International Publishing*. •
Main references (sources)	▪ **القماطي، احمد المجدوب (٢٠٠٥). الغدد الصم وهرموناتها. كلية الزراعة. جامعة الفاتح.** ▪ **العلوجي، صباح ناصر، (٢٠١٤). علم وظائف الأعضاء . دار الفكر المملكة الأردنية الهاشمية.** 5-
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Ecology
2. Course Code:
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
30/4/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Mohammed Fadhil Abood Email: eps.mohammed.fadhel@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the environmental subject 2- That the student becomes familiar with the concept and divisions of environmental science 3- The student understands the types of ecosystems 4- The student should understand the living and non-living factors affecting ecosystems 5- The student should understand the balance of ecosystems and how humans affect this balance 6-Introducing the student to biogeochemical cycles. 7- Introducing the student to how energy flows through the food chain and food web. 8-Introducing the student to environmental pyramids and their types. 9- Introducing the student to the determining factors and levels of tolerance in ecosystems. 10- Introducing the student to productivity in the ecosystem and methods for measuring it. 11-Introducing the student to negative and positive nutritio relationships between living organisms in the environment.

9. Teaching and Learning Strategies	
Strategy	. A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the components of ecosystems B2 - Developing the skill of knowing climate factors and their effects B3 - Developing the skill of linking these climatic factors with practical material using laboratory equipment C- Emotional and value goals C1- Thinking that explores the truth through (question and answer) C2- Managing societal problems by finding appropriate solutions to them through academic concepts C3- Spreading the spirit of interaction and attraction among students through academic competition C4- Urging students to employ what they have learned in public life D - General and qualifying transferable skills (other skills related to employability and personal development). D1−The skill of studying environmental systems D2− The skill of measuring and analyzing non−living factors affecting ecosystems D3− The skill of knowing how to maintain the balance of ecosystems D4− The skill of self−development by giving him information that will bene him in the academic future D5− It enables the student to use what he has learned to develop hims and preserve his environment

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Ecology, definition of ecology, relationship of ecology to other sciences	Definitions of ecology and scientists contributing to ecology	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Divisions of ecology and types of ecosystems	Introducing the student to the types of ecosystems	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Components of an ecosystem: living and non-living components	Introducing the student to the components of the ecosystem	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Ecosystem balance	Introducing the student to the balance of the ecosystem	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	Semester exam -1	Determine the student's understanding of the material	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data	Biogeochemical cycles	The student's	2 Theoretical + 2 practical	٦

	show		understanding of the cycles of elements in nature		
motivational questions	Blackboard and data show	Biological productivity, types of productivity, methods of measuring productivity	The student's understanding of the types of biological productivity	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Tolerance laws (Leebig's law and Shelford's law	The student's understanding of the laws of endurance and climatic factors	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Food chains and their types, food web	The student understands food chains and food webs	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Environmental pyramids and their types	Introducing the student to environmental pyramids	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Semester exam-2	Determine the student's understanding	2 Theoretical + 2 practical	١١

			of the material		
motivational questions	Blackboard and data show	Community	*The student learns the concept of society and population	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Review	The student's understanding of the material studied during the semester *The student's knowledge of the connection between all of the above	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	, the second month exam	To increase the student's awareness through enrichment questions With a calendar exam	2 Theoretical + 2 practical	١٤

11. Course Evaluation

The grade distribution is from 25 for the theoretical aspect, with 15 marks for the practical aspect, in addition to the student's evaluation according to the tasks assigned to him, such as daily preparation, daily, oral, monthly, written exams, reports... etc.

12. Learning and Teaching Resources

Required textbooks (curricular books any)	٦- مولود ،بهرام خضر ،حسين علي السعدي ،حسين شريف الاعظمي .(١٩٩١)علم البيئة والتلوث .جامعه بغداد
Main references (sources)	2-Odum, E.P. (1971) Fundamentals of Ecology. Third Edition, W.B. Saunders Co., Philadelphia, 1-574.

	3-Botkin and Keller (1995). Environmental Science – Earth as a living planet. John Wiley, New York 4-Nebel and Wright (1996): Environmental Science, way the world works, 5th Ed. Prentice Hall, New Jerse ٥-علم البيئة ونوعية بيئتنا (١٩٨٤) تأليف تشارلس هـ . سوثويك. (ترجمة قيصر - نجيب صالح وسهيلة الدباغ وطارق محمد صالح) - جامعة الموصل - العراق . ٦-المدخل إلى العلوم البيئية (١٩٨٧) سامح غرايبة ويحي الفرحان المركز العربي لتوزيع المطبوعات - بيروت – لبنان. 1-
Recommended books and references (scientific journals, reports…)	Journal of environment, sustainable development and hun health
Electronic references, websites	https://www.researchgate.net https://www.uoanbar.edu.iq/staff-page.php?ID=1124

Course Description Form

1. Course Name:
Genetics 1
2. Course Code:
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Samir Mishrif khalaf Email: samirmishrif@uoanbar.edu.iq Name: Assist. Instructor. Elham Ahmed Mejbel Email: elham.ahmed@uoanbar.edu.iq Name: Assist. Instructor. Ridhab Ajeel Jasim Email: ridhab90@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the subject of genetics 2-The student should be familiar with the concept of genetics materials 3- That the student understands the types of Mendl laws 4- That the student understands the concepts of genetics problems 5- That the student understands how to use gene interactions
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture

	5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the distribution of genetics problems and using them in the practical aspect B2 - Developing the skill of how to calculate the genetics interactions B3 - Developing the skill of employing the properties of random distributions for use in the practical aspect of genetic illness C- Emotional and solve the genetics problems C1- Thinking that explores principle of segregations C2- Managing societal problems by finding appropriate solutions to them through academic concepts C3- Spreading the spirit of interaction and attraction among students through academic competition C4- Urging students to employ what they have learned in public life D - Transferable general and qualifying skills (other skills related to employability and personal development). D1-The skill of calculating genetics problems D2- The skill of calculating the probability of free independent D3- The skill of knowing the degree of penetrance D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to develop himse

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Principle of genetics	Understand the lecture topic	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Principle of genetics	Understand the lecture topic	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	The reaction of genetics factors	Understand the lecture topic	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Genetics interaction	Understand the lecture topic	2 Theoretical + 2 practical	٤
motivational	Blackboard	Multiples alleles	Understand the	2 Theoretical	٥

questions	and data show		lecture topic	+ 2 practical	
motivational questions	Blackboard and data show	S.S. alleles	Understand the lecture topic	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Molecular genetics	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Molecular genetics	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	understanding of what has been studied by taking the lecture, grade	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Nuclear acid	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Nuclear acid	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Nucleic acid packaging	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions	Understand the lecture topic	2 Theoretical + 2 practical	١٤

11. Course Evaluation

Distributing the score out of 40 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)	٧- مدخل في علم الوراثة – سعد جابر تاج الدين ٨- خاشع الراوي، مدخل الى علم الاحصاء ، دار نشر جامعة الموصل، العراق.الكيمياء اللاعضوية العصرية د.باسم السعدي
Main references (sources)	9- NCBI
Recommended books and references (scientific journals, reports…)	Human genetics Electronic book
Electronic References, Websites	https://www.uoanbar.edu.iq/staff-page.php?ID=1094

Course Description Form

1. Course Name:
Genetics 2
2. Course Code:
3. Semester / Year:
Second semester/2023−2024
4. Description Preparation Date:
1/2/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Samir Mishrif khalaf Email: samirmishrif@uoanbar.edu.iq Name: Assist. Instructor. Elham Ahmed Mejbel Email: elham.ahmed@uoanbar.edu.iq Name: Assist. Instructor. Ridhab Ajeel Jasim Email: ridhab90@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the subject of Molecular genetics 2-The student should be familiar with the concept of a DNA types 3- That the student understands the types of RNA 4- That the student understands the concepts of Genetic code 5- That the student understands how to use probability theory in da life
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture

	5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the Molecular genetics and using them in the practical aspect B2 - Developing the skill of how to calculate the gene pole B3 - Developing the skill of employing the properties of genetic illness for use in the practical aspect of life C- Emotional and value goals C1- Thinking that explores the truth through (question and answer) C2- Managing societal problems by finding appropriate solutions to them through academic concepts C3- Spreading the spirit of interaction and attraction among students through academic competition C4- Urging students to employ what they have learned in public life D - Transferable general and qualifying skills (other skills related to employability and personal development). D1-The skill of calculating number genetic methods D2- The skill of calculating the gene interaction of certain events D3- The skill of knowing the mutations D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to develop himse

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Central dogma	Understand the lecture topic	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Central dogma	Understand the lecture topic	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Genetic code	Understand the lecture topic	2 Theoretical + 2 practical	٣
motivational	Blackboard	Protein synthesis	Understand the	2 Theoretical	٤

questions	and data show		lecture topic	+ 2 practical	
motivational questions	Blackboard and data show	a comprehensive review	Understand the lecture topic	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	Monthly Exam	Understand the lecture topic	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Restriction enzymes	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Restriction enzymes	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Genetic disorders	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Genetic mutations	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	conducting a monthly examination	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Problems	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	DNA repair	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	PCR	Understand the lecture topic	2 Theoretical + 2 practical	١٤

11. Course Evaluation	
Distributing the score out of 40 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)	١٠- مدخل في علم الوراثة – سعد جابر تاج الدين ١١- خاشع الراوي، مدخل الى علم الاحصاء ، دار نشر جامعة الموصل، العراق.الكيمياء اللاعضوية العصرية د.باسم السعدي
Main references (sources)	12- NCBI
Recommended books and references (scientific journals, reports…)	Human genetics Electronic book
Electronic References, Websites	https://www.uoanbar.edu.iq/staff-page.php?ID=1094

Course Description Form

1. Course Name:
Biotechnology
2. Course Code:
BIO129
3. Semester / Year:
Second– semester/2023–2024
4. Description Preparation Date:
28/1/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ali Abd Sharad Email: aliabd197359@uoanbar.edu.iq Name: Assist. Instructor. Hussein Riyadh Abdul Kareem Email: Hussin.riyadh@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Providing students with the required biotechnological skills that enable them to work effectively in an educational or professional context such as higher education, specialized industrial laboratories, pharmaceuticals and forensics B. Preparing university teachers who possess the educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate educational methods teaching biology
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1. Understanding the role of biotechnology in developing community life

	2. Acquire distinct practical scientific skills in the field of biotechnology. 3. Knowledge of ethics in the practical practice of biotechnology B - The skills objectives of the course. B1 1. Providing the student with knowledge related to biotechnology applications 2. Providing the student with knowledge of the components of nucleic acids and their practical applications to serve humanity. 3. Providing the student with knowledge of how to harness biological sciences in the agricultural, industrial, and medical fields. 4. Providing the student with the skill of linking the theoretical and practical parts of the scientific subject 5. The student should use illustrative means such as posters and videos related to the scientific subject C- Emotional and value goals 1. Thinking that explores the truth through (question and answer) 2. Managing societal problems by knowing appropriate solutions to them through academic concepts 3. Creating a spirit of interaction and attraction among students through academic competition 4. Urging students to employ what they have learned in public life D - Transferable general and qualifying skills (other skills related to employability and personal development). 1. The skill of knowing the degree of correlation between variables 2. The skill of self-development by giving him information that will benefit him in the academic future 3. It enables the student to use what he has learned to develop himself

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Biotechnology, definition, some facts related to biotechnology	Know the definitions of biotechnology and some of its applications	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Genetic material: molecular structure, replication,	Understanding the function and structure of genetic material	2 Theoretical + 2 practical	٢

		transcription and translation			
motivational questions	Blackboard and data show	DNA techniques	Knowledge of DNA techniques and their current modern applications	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Gene vectors: bacteriophage and cosmid plasmids	Knowledge of the structure and function of gene vectors	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	Expectation and variance.	Determine the student's understanding of the material	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	Production of genetically modified plants	Knowledge of methods of producing genetically modified plants	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Examples of genetically modified plants	Examples of the most important genetically modified plants and the techniques used in their production	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Genetically engineered animals: methods of producing them. Some applications	Knowledge of genetically engineered animals and modern production techniques.	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Examples of genetically modified animals	Understanding the most important genetically modified animals and the techniques used to modify them	2 Theoretical + 2 practical	٩
motivational	Blackboard	Applications of	Understanding the	2 Theoretical	١٠

questions	and data show	biotechnology in medicine, some applications	most important applications of biotechnology and its use in medical settings	+ 2 practical	
motivational questions	Blackboard and data show	Biotechnology applications in industry	Understanding the most important applications of biotechnology and its use in industrial settings	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Biotechnology applications in the environment	Understanding the most important applications of biotechnology and its use in environmental settings	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show		Determine the student's understanding of the material	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show		*The student's understanding of the material studied during the semester	2 Theoretical + 2 practical	١٤
motivational questions with the grade	Blackboard and data show		*The student's knowledge of the connection between all of the above	2 Theoretical + 2 practical	١٥

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)	Nil
Main references (sources)	The book "Basics of Biotechnology" written by: Dr. Ali Ibrahim Ali Obayya and Dr. Ahmed Abdel Fattah Mahmoud /

	Modern Knowledge Library 05/15/2012. 2.Biotechnology Written by: Dr. Fayez Aziz Al-Ani 3. Introduction to technology for vitality, written by Mahmoud Muhammad Refaat and Saad bin Ayes Al-Atbi / Alexandria University
Recommended books and references (scientific journals, reports…)	A first course in probability , Sheldon Ross, Ninth Edition, 2014
Electronic References, Websites	**Verma, P.S., 2005. *Cell biology, genetics Molecular Biolo Evolution and ecolog***

Course Description Form

1. Course Name:
Animal Physiology
2. Course Code:
BIO358
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Haitham Lateef Abdulhadi Name: SAIF SUBHI NOORI Email: haytham.lateif@uoanbar.edu.iq Email: Saifsubhy89@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1) The student is seeking the meaning of physiology, its basics, and what scientific achievements have been in this field. 2) The student currently faces the scientific problems facing scientific research within this science. 3) An introduction to the connections in each of these subjects between scientific principles and functional functions. 4) Revealing the interrelationships between this science and otl sciences.
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment

	B - The skills objectives of the course. B. 1 To learn safety and security procedures while working in the laboratory B. 2 The student learns how to use laboratory scientific equipment related to this science B. 3 The student learns how to deal with experimental animals and samples related to the practical aspect B. 4 To be able to prepare the chemicals related to his work in the laboratory B. 5 To be able to calculate and estimate the variables being studied C- Emotional and value-based goals C1- Stimulating teamwork among students C2- Developing the student's skills and thinking C3- Stimulating brainstorming among students C. 4 To be able to explain the results that he can obtain while practicin his laboratory work C. 5 To be able to relate and analyze problems that may arise during hi work D - Transferable general and qualifying skills (other skills related to employability and personal development). Dr.. 1 To be able to interpret the results that he can obtain while practicing his laboratory work Dr.. 2 To be able to relate and analyze the problems that may arise during his work. D.3 Verbal teaching behavior skills such as discussion, dialogue, explanation and interpretation. D.4 Non-verbal teaching behavior skills, such as visual contact betwee the teacher and the student, use means of illustration such as educational videos and pictures D.5 Planning skill: such as the skill of determining the lesson topic, usi appropriate methods, and preparing questions

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Physiology and its general principles	Physiology and its general principles	2 Theoretical + 2 practical	١

motivational questions	Blackboard and data show	Sciences related to physiology and methods of studying physiology	The most prominent sciences related to physiology	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Physiology of the circulatory system	Circulatory system components	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Blood cells	Red blood cells and white cells	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	the heart	Electrical accidents accompanying the heartbeat	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	The first theoretical test	The first theoretical test	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Respiratory system physiology	Parts of the respiratory system and the functions of each part	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Methods of transporting gases during breathing	Transport of oxygen and carbon dioxide	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Muscular system physiology	Muscle functions and muscle types	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Thread-slip theory	How contraction and relaxation of skeletal muscles occur	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	The second theoretical test	Second test	2 Theoretical + 2 practical	١١
motivational	Blackboard	Physiological effect	Physiological effect	2 Theoretical	١٢

questions	and data show	of heat and energy metabolism	of heat and energy metabolism	+ 2 practical	
motivational questions.	Blackboard and data show	Review	Circulatory system components	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٤

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)	١٣- ١- Youssef Muhammad Arab and others, Animal Physiology, Dar Al-Kutub for Printing and Publishing, University of Mosul, 1989
Main references (sources)	1- 2- Help books from other Arab and foreign sources by a number of authors and a number of publishing houses 2- 3- Functional anatomy and physiology, written by Shteiwi Al-Abdullah
Recommended books and references (scientific journals, reports…)	1. Principles of Physiology Dr. Asaad Kamel Abdullah 2. For a reference in medical physiology... Guyton and Hall 3. Guyton And Hall Textbook Of Medical Physiology 4. General physiology and pathophysiology, Part 3
Electronic References, Websites	-https://www.webmd.com/a-to-z-guides/what-is-physiology

Course Description Form

1. Course Name:
plant anatomy
2. Course Code:
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 4Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Sameer Sarhan Khaleel Email: eps.sameersarhan.khleel@uoanbar.edu.iq Name: Assist. Instructor. Baraa hameed saleh Email:. bh42238@uoanbar.edu.iq Name: Assist. Instructor. Hind hamid hasan Email:. hind.hamid@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the subject of plant anatomy 2- For the student to become familiar with the concept of plant tissues 3- The student should understand the types of plant tissues 4- The student should understand the location and function of each plant tissue 5- The student should understand how to differentiate between pl cells and tissues

9. Teaching and Learning Strategies

Strategy	Shedding light on plant tissues, their types and divisions, and knowing the

	location, shape, structure and function of each of these tissue types. Using a set of microscopic models of different sections of roots, stems, a leaves, and identifying the tissues that make up these different pl organs.

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	First	Concept of plant anatomy	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Second	Plant cell - its components - cell wall - protoplast - living and non-living contents	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Third	Plant tissues - meristematic tissues - theories related to meristems in the stem and root	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Fourth	Permanent tissues - connective tissues - parenchymal tissue - collenchyma - sclerenchyma - xylem and phloem	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	Fifth	Secretory tissues and structures	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data	Sixth	Internal structure of plant body organs	2 Theoretical + 2 practical	٦

	show				
motivational questions	Blackboard and data show	Seventh	Internal anatomy of the primary and secondary root	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Eighth	Internal anatomy of the Stem	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Ninth	Internal anatomy of a leaf	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Tenth	Internal anatomy of the flower and seed	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Eleventh	Internal anatomy of plants and their relationship to the environment	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Twentieth	Study the effect of the environment on the internal structure of plants (desert and aquatic plants)	2 Theoretical + 2 practical	١٢

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)	plant anatomy book
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Plant Physiology
2. Course Code:
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
15/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Mahmood Ali Shaher Al-Shaheen Name: Assist.Instructor Hind hamid hassen Email: maalshaheer@uoanbar.edu.iq Email: hind.hamid@uoanbar.edu.iq
8. Course Objectives

Course Objectives	Introduction to plant physiology, the importance of water to plants, a the water relations that govern the movement of water and nutrie within the plant body, identifying plant nutrients and the mechanisms their absorption and transpiration , as well as studying t photosynthesis process , respiration, germination, and the role of pl hormones in plant growth and reproduction.

9. Teaching and Learning Strategies

Strategy	**The student learns about the mechanisms of the biological processes that take place plants, including the absorption of water and nutrients, the process of photosynthe respiration, germination, and hormonal control of plant growth.**

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	**Definition, history and water important for plant**	Understand the lecture topic	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Diffusion , Osmosis	Understand the lecture topic	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	.Imbibition , Water absorption thiories	Understand the lecture topic	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Transpiration	Understand the lecture topic	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	Mineral nutrient by plant	Understand the lecture topic	2 Theoretical + 2 practical	٥
Examination					٦
motivational questions	Blackboard and data show	Photosynthesis , Light reaction	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Dark reaction	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Respiration	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data	:Growth hormones	Understand the lecture topic	2 Theoretical + 2 practical	١٠

	show				
Examination					١١
motivational questions	Blackboard and data show	Germination	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Revewing	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٤
motivational questions with the grade	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	١٤- Plant Physiology by Faisal Al Sokkary
Main references (sources)	Nil
Recommended books and references (scientific journals, reports…)	Nil
Electronic References, Websites	Nil

Course Description Form

1. Course Name:	
Embryology	
2. Course Code:	
3. Semester / Year:	
Second semester/2023−2024	
4. Description Preparation Date:	
12/02/2024	
5. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hr./ 3Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Nafi Ahmed Saud Email: nafi.saud@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	This course aims to convey a general idea about: 1- This course aims to provide the student with basic information about embryology and the stages that the embryo goes through during its formation, such as the stages of gametogenesis , fertilization, cleavage, endocytosis, the formation of the three embryonic layers, the organelle stage, the formation of some basic organs, and their comparison between different embryos. 2- Identify the modern techniques used in external fertilization(IVF) a artificial insemination
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1. The student's familiarity with the history of the development of cell science, and the basic structures and purposes of the components of prokaryotic and eukaryotic cells, especially molecules, membranes, and organelles. 2. Knowing the cellular components behind cell division processes, and using these components to generate energy in cells. 3. The student works by applying knowledge of cell biology to the

	causes of change or loss of cell functions, which may include environmental and physiological changes and the emergence of mutations.B - The skills objectives of the course. B1 - - Bringing ideas to make embryology practical, possible and accessible to government health institutions. B2- Making comparisons between advanced embryology laboratories and what they are like in our laboratories in terms of proposing possible ways to equip advanced laboratories. B3- Conduct distinguished, unconventional scientific research, such as a PowerPoint presentation supported by pictures and video clips. B4- Developing creative ideas to link embryology to the scientific miracle and seeking assistance from the international scientific institution for the scientific miracle. C- Emotional and value goals C1- Collecting scientific material from various sources to make presentations and present ideas, and demonstrate her skill in collecting, coordinating, presenting and dialogue. C2- Taking responsibility for completing her assignments on time, in a good and distinguished manner, and being disciplined in her work. C3- Cooperative education through the formation of work groups that agree to accomplish a task and evaluate the best groups, with the aim of spreading the spirit of cooperation, competition, and love of excellence. D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Assignment to research on Internet sites what is new and current regarding the development of embryology, especially in the field of electron microscopy and artificial insemination. D2- Stirring the mind through scientific translation, searching dictionaries for scientific terms and their meanings, and how to formulate a simple and smooth scientific translation. D3- Creating advanced presentation methods and discussing ways to employ them in teaching the subject. D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to devel himselfelf

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Definition of embryology and embryogenesis, evolutionary foundations	The student learns the basic principles of embryology and its history	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Spermatogenesis	The student will learn how the process Spermatogenesis takes place in different organisms	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Oogenesis	The student will learn how the process Oogenesis takes place in different organisms	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Fertilization	The student will learn the concept of fertilization	2 Theoretical + 2 practical	٤
motivational	Blackboard	Cleavage	The student	2 Theoretical	٥

questions	and data show		should know the concept of Cleavage	+ 2 practical	
motivational questions	Blackboard and data show	First month exam		2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Embryogenesis of Amphioxus	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	The process of gastrulation and organogenesis	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Frog Embryogenesis	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Embryonic formation in birds	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Assisted reproductive technologies	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The properties of expectation,	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions Second month exam	Understand the lecture topic	2 Theoretical + 2 practical	١٤

motivational questions with the grade	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	Embryology, second edition, Dr. Kawakib Abdel Qader -
Main references (sources)	Physiology and Pathology of Reproductive System -١٥ 2017, Assit.prof.Dr. Sabah Abdal Hameid A.Rahma
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Embryology
2. Course Code:
3. Semester / Year:
Second semester/2023−2024
4. Description Preparation Date:
12/02/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Nafi Ahmed Saud Email: nafi.saud@uoanbar.edu.iq Name: Assist.Instructor Name: Assist.Instructor Eman Naji Saleh Email: aemanng349@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1- This course aims to provide the student with basic information about embryology and the stages that the embryo goes through during its formation, such as the stages of gametogenesis , fertilization, cleavage, endocytosis, the formation of the three embryonic layers, the organelle stage, the formation of some basic organs, and their comparison between different embryos. 2- Identify the modern techniques used in external fertilization(IVF) a artificial insemination

9. Teaching and Learning Strategies

Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1. The student's familiarity with the history of the development of cell science, and the basic structures and purposes of the components of prokaryotic and eukaryotic cells, especially molecules, membranes, and organelles.

	2. Knowing the cellular components behind cell division processes, and using these components to generate energy in cells. 3. The student works by applying knowledge of cell biology to the causes of change or loss of cell functions, which may include environmental and physiological changes and the emergence of mutations.B - The skills objectives of the course. B1 - - Bringing ideas to make embryology practical, possible and accessible to government health institutions. B2- Making comparisons between advanced embryology laboratories and what they are like in our laboratories in terms of proposing possible ways to equip advanced laboratories. B3- Conduct distinguished, unconventional scientific research, such as a PowerPoint presentation supported by pictures and video clips. B4- Developing creative ideas to link embryology to the scientific miracle and seeking assistance from the international scientific institution for the scientific miracle. C- Emotional and value goals C1- Collecting scientific material from various sources to make presentations and present ideas, and demonstrate her skill in collecting, coordinating, presenting and dialogue. C2- Taking responsibility for completing her assignments on time, in a good and distinguished manner, and being disciplined in her work. C3- Cooperative education through the formation of work groups that agree to accomplish a task and evaluate the best groups, with the aim of spreading the spirit of cooperation, competition, and love of excellence. D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Assignment to research on Internet sites what is new and current regarding the development of embryology, especially in the field of electron microscopy and artificial insemination. D2- Stirring the mind through scientific translation, searching dictionaries for scientific terms and their meanings, and how to formulate a simple and smooth scientific translation. D3- Creating advanced presentation methods and discussing ways to employ them in teaching the subject. D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to devel himselfelf

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Definition of embryology and embryogenesis, evolutionary foundations	The student learns the basic principles of embryology and its history	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Spermatogenesis	The student will learn how the process Spermatogenesis takes place in different organisms	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Oogenesis	The student will learn how the process Oogenesis takes place in different organisms	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Fertilization	The student will learn the concept of fertilization	2 Theoretical + 2 practical	٤
motivational	Blackboard	Cleavage	The student	2 Theoretical	٥

questions	and data show		should know the concept of Cleavage	+ 2 practical	
motivational questions	Blackboard and data show	First month exam		2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Embryogenesis of Amphioxus	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	The process of gastrulation and organogenesis	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Frog Embryogenesis	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Embryonic formation in birds	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Assisted reproductive technologies	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The properties of expectation,	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions Second month exam	Understand the lecture topic	2 Theoretical + 2 practical	١٤

motivational questions with the grade	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	Embryology, second edition, Dr. Kawakib Abdel Qader -
Main references (sources)	Physiology and Pathology of Reproductive System -١٦ 2017, Assit.prof.Dr. Sabah Abdal Hameid A.Rahma
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Cell Biology1	
2. Course Code:	
BIO129	
3. Semester / Year:	
first semester/2023−2024	
4. Description Preparation Date:	
15/9/2023	
5. Available Attendance Forms:	
Classroom Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
34 hr./ 2Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Hiba Abbas Jasim Email: h.a.jasim@uoanbar.edu.iq Name: Assist.Instructor Mustafa mezban mohammed Email: aemanng349@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	A. Introducing the student to the types and functions of animal, plant and microscopic cells B. Preparing university teachers who possess the educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educational methods teaching biology
9. Teaching and Learning Strategies	
Strategy	**A- Cognitive objectives** 1. The student's knowledge of the history and development of cell science 2. Providing the student with knowledge of the types of microscopes 3. Providing the student with knowledge of living and non-living cellular organelles **B - The skills objectives of the course.** 1. Providing the student with knowledge related to preparing cellular samples

	and microscopic measurements 2. Providing the student with knowledge of the structure and types of the microscope and how it works 3. Providing the student with knowledge of how to prepare slides for cells 4. Providing the student with the skill of linking the theoretical and practical parts of the scientific subject 5. The student should use illustrative tools such as posters and videos related to scientific subject **A- Teaching and learning methods** Lectures, discussion, short reports, induction and measurement, and probl solving. **B- Evaluation methods** -Monthly test (essay and objective) -Activity -Short questions -Reports -Duties -final exam **C- Thinking skills** Teaching and training students to link theoretical study with laboratory experime to consolidate information about the structure and function of cell. **D - General and transferable skills (other skills related to employability a personal development) .** D1- Verbal teaching behavior skills such as discussion, dialogue, explanation and interpretation. D2- Non-verbal teaching behavior skills, such as visual contact between the teacher and the student, and use means of illustration such as educational videos and pictures D3- Planning skill: such as the skill of determining the lesson topic, us appropriate methods, and preparing questions

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	cell science developed	Understand the lecture topic	1 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	the relationship of cell science to other sciences	Understand the lecture topic	1 Theoretical + 2 practical	٢
motivational	Blackboard	cell structure and	Understand the	1 Theoretical	٣

questions	and data show	features	lecture topic	+ 2 practical	
motivational questions	Blackboard and data show	the cell types	Understand the lecture topic	1 Theoretical + 2 practical	٤
FIRST MONTH EXAM					5
motivational questions	Blackboard and data show	the structure of bacteria	Understand the lecture topic	1 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	the structure of viruses and algae	Understand the lecture topic	1 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	the difference between plant and animal cells	Understand the lecture topic	1 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	the function of chemical compounds in the cell	Understand the lecture topic	1 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	the function of chemical compounds in the cell	Understand the lecture topic	1 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Feedback	Understand the lecture topic	1 Theoretical + 2 practical	١١
SECOND MONTH EXAM					١٢

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)	17- Ibrahim, Muhammad Reda Ali (1999) Cell and Inheritance. Ibn Sina Library, Cairo 18- Al-Faisal, Abdul Hussein (2000) The cell: precise structure and functions. Al-Ahliyya, Kingdom of Jordan
Recommended books and references (scientific journals, reports…)	Thomas D. Pollard, William C. Earnshaw, Graham T. Johnson, 2017, Cell Biol 3ed
Electronic References, Websites	Verma, P.S., 2005. Cell biology, genetics Molecular Biology, Evolution and ecology

Course Description Form

1. Course Name:
Cell Biology2
2. Course Code:
BIO129
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
15/2/2024
5. Available Attendance Forms:
Classroom Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
34 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Hiba Abbas Jasim Email: h.a.jasim@uoanbar.edu.iq Name: Assist.Instructor: adeeb shakir mahmood Email: adeebsh88@uoanbar.edu.iq
8. Course Objectives

Course Objectives	A. Introducing the student to the types and functions of animal, plant and microscopic cells B. Preparing university teachers who possess the educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educational methods teaching biology
9. Teaching and Learning Strategies	
Strategy	**A- Cognitive objectives** 1. The student's knowledge of the history and development of cell science 2. Providing the student with knowledge of the types of microscopes 3. Providing the student with knowledge of living and non-living cellular organelles **B - The skills objectives of the course.** 1. Providing the student with knowledge related to preparing cellular samples

and microscopic measurements

2. Providing the student with knowledge of the structure and types of the microscope and how it works

3. Providing the student with knowledge of how to prepare slides for cells

4. Providing the student with the skill of linking the theoretical and practical parts of the scientific subject

5. The student should use illustrative tools such as posters and videos related to scientific subject

A- Teaching and learning methods

Lectures, discussion, short reports, induction and measurement, and probl solving.

B- Evaluation methods

-Monthly test (essay and objective)

-Activity

-Short questions

-Reports

-Duties

-final exam

C- Thinking skills

Teaching and training students to link theoretical study with laboratory experime to consolidate information about the structure and function of cell.

D - General and transferable skills (other skills related to employability a personal development) .

D1- Verbal teaching behavior skills such as discussion, dialogue, explanation and interpretation.

D2- Non-verbal teaching behavior skills, such as visual contact between the teacher and the student, and use means of illustration such as educational videos and pictures

D3- Planning skill: such as the skill of determining the lesson topic, us appropriate methods, and preparing questions

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	**the exact structure of the cell wall**	Understand the lecture topic	1 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	**the function of the cell membrane**	Understand the lecture topic	1 Theoretical + 2 practical	٢
motivational	Blackboard	**the structure and**	Understand the	1 Theoretical	٣

questions	and data show	**function of the endoplasmic reticulum**	lecture topic	+ 2 practical	
motivational questions	Blackboard and data show	**the structure and function of mitochondria and plastids**	Understand the lecture topic	1 Theoretical + 2 practical	٤
FIRST MONTH EXAM					5
motivational questions	Blackboard and data show	**the structure and function of cell organelles**	Understand the lecture topic	1 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	**the process of cell division**	Understand the lecture topic	1 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	**how enzymes work**	Understand the lecture topic	1 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	**the gene expression**	Understand the lecture topic	1 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	**the connection between all of the above**	Understand the lecture topic	1 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	feedback	Understand the lecture topic	1 Theoretical + 2 practical	١١
SECOND MONTH EXAM					١٢

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)	1- Ibrahim, Muhammad Reda Ali (1999) Cell and Inheritance. Ibn Sina Library, Cairo 2- Al-Faisal, Abdul Hussein (2000) The cell: precise structure and functions. Al-Ahliyya, Kingdom of Jordan
Recommended books and references (scientific journals, reports…)	Thomas D. Pollard, William C. Earnshaw, Graham T. Johnson, 2017, Cell Biol 3ed
Electronic References, Websites	Verma, P.S., 2005. Cell biology, genetics Molecular Biology, Evolution and ecology

Course Description Form

1. Course Name:
Chordate
2. Course Code:
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Bakaa Hazim esmail Email: bakaa.hazim@uoanbar.edu.iqdu.iq Name: Assist.Instructor: Oqba abdul alhalem abdul aljabar Email: oqbaalhadethe@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Introducing the student to CHORDATA, Introducing the student to chordates, their classification, installation of devices and their functions. B. Preparing university teachers who possess educational skills to teach chordates C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educatio methods for teaching the subject of chordate science
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture

	5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the distribution of random variables and using them in the practical aspect
	ing the student with knowledge related to the study of chordata
	ing the student with knowledge of the types of chordata and their heir re and shapes

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	An overview of the types and shapes of chordates	introduction to chordates.	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Classification of chordates and their general features	introduction to chordates.	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	its structure, and a comparison between the types of chordates	The integumentary system	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	its sections, and a comparison between types	The digestive system	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show		First month exam	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	its parts, and a comparison between types	The urinary system	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	its parts, and a comparison between species	The male reproductive system	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	its parts, and a comparison between species	The female reproductive system,	2 Theoretical + 2 practical	٨

motivational questions	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Review	review	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Expectation and conditional variance.	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The properties of expectation,	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions	Understand the lecture topic	2 Theoretical + 2 practical	١٤
motivational questions with the grade	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	٣- Verma, P. S. (2010). *Chordate zoology*. S. Chand Publishing.
Main references (sources)	4-
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Endocrinology	
2. Course Code:	
3. Semester / Year:	
Second semester/2023−2024	
4. Description Preparation Date:	
1/2/2024	
5. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hr./ 3Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Bakaa Hazim esmail Email: bakaa.hazim@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	This course aims to convey a general idea about: Introducing the student to Endocrinology, Its composition, function and benefits B. Preparing university teachers with educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate teaching aids t teaching biology and sciencelife
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. D3- The skill of knowing the degree of correlation between variables

	D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to develop himse

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Introduction to endocrine glands.	An overview of the types of endocrine gland	Introduction to endocrine glands.	١
motivational questions	Blackboard and data show	Hypothalamus	Its composition and types of hormones it secretes	Hypothalamus	٢
motivational questions	Blackboard and data show	pituitary gland	Its composition and types of hormones it secretes	pituitary gland	٣
motivational questions	Blackboard and data show	pituitary gland	Its composition and types of hormones it secretes	pituitary gland	٤
motivational questions	Blackboard and data show	First month exam		First month exam	٥
motivational questions	Blackboard and data show	Thyroid and parathyroid glands	Its composition and types of hormones it secretes	Thyroid and parathyroid glands	٦
motivational questions	Blackboard and data show	Adrenal gland	Its composition and types of hormones it	Adrenal gland	٧

			secretes		
motivational questions	Blackboard and data show	Gonads	Its composition and types of hormones it secretes	Gonads	٨
motivational questions	Blackboard and data show	Semester test	Semester test	Semester test	٩
motivational questions	Blackboard and data show	Review	review	review	١٠

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)	• Kleine, B., & Rossmanith, W. G. (2016). Hormones and the endocrine system. *Cham: Springer International Publishing*. •
Main references (sources)	▪ **القماطي، احمد المجدوب (٢٠٠٥). الغدد الصم وهرموناتها. كلية الزراعة. جامعة الفاتح.** ▪ **العلوجي، صباح ناصر، (٢٠١٤). علم وظائف الأعضاء . دار الفكر المملكة الأردنية الهاشمية.** 5-
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Microbiology
2. Course Code:
Bio350
3. Semester / Year:
first semester/2023-2024
4. Description Preparation Date:
30/4/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Dhaffer Fakri Abdelkader Name: Omer dhia aldeen salah aldeen Email: prof.daffer@uoanbar.edu.iq Email: Omer9922ff@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the definition of microbiology 2-The student will be familiar with the discovery of microorganisms 3- For the student to recognize the characteristics and shapes of bacteria 4- That the student understands how to isolate and diagnose types c microorganisms 5-The student understands how to deal with microorganisms and wa to control them

9. Teaching and Learning Strategies	
Strategy	. A- Cognitive objectives 1- Extrapolation

	2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B1 – Developing the skill in knowing microorganisms B2 – Developing the skill of knowing methods for isolating and diagnosing microorganisms B3 – Developing the skill of linking microbiological diagnosis with practica material using culture methods and laboratory diagnosis C– Emotional and value goals C1– Thinking that explores the truth through (question and answer) C2– Managing societal problems by finding appropriate solutions to them through academic concepts C3– Spreading the spirit of interaction and attraction among students through academic competition C4– Urging students to employ what they have learned in public life D – Transferable general and qualifying skills (other skills related to employability and personal development). D1–The skill of studying the characteristics, types and shapes of bacteria D2– Microbiology diagnosis skill D3– The skill of knowing how to culture microorganisms D4– The skill of self–development by giving him information that will bene him in the academic future D5– It enables the student to use what he has learned to develop himself

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Introduction to microbiology and its development	The student learns the basic principles and concepts of microbiology	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	The spread of microorganisms, their presence and their importance	The student learns the spread of microorganisms and their importance	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Characteristics of bacteria, their shapes, and the basis of their classification	The student understands the characteristics and shapes of bacteria	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Bacterial cell structure - wall - internal structures -	The student will learn the structure of the bacterial cell	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	Monthly exam	Evaluation exam	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	Nutrition of bacteria and composition of culture media and growth factors	The student should know the concept and methods of bacteria nutrition	2 Theoretical + 2 practical	٦

motivational questions	Blackboard and data show	Bacterial growth, growth stages, and how to monitor it	The student knows the stages of bacterial growth	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Bacterial cultivation and cultivation methods	The student learns methods of culturing bacteria	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Physiology of microorganisms - how to obtain energy	To understand the physiology of microorganisms	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Metabolism and metabolic pathways	The student learns the concept of cellular metabolism	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Sterilization and control of microorganisms	The student will learn the concept and methods of sterilization and control of microorganisms	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Antibiotics	The student will learn the concept of antibiotics	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Second exam	To increase the student's awareness through enrichment questions With an assessment exam	2 Theoretical + 2 practical	١٣

11. Course Evaluation

The grade distribution is from 25 for the theoretical aspect, with 15 marks for the practical aspect, in addition to the student's evaluation according to the tasks assigned to him, such as daily preparation, daily, oral, monthly, written exams, reports... etc.

12. Learning and Teaching Resources	
Required textbooks (curricular books any)	1- Al-Zaidi, Hamid Majeed (1987). Microbiology 2-Lectures prepared by the subject professor
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites	https://www.researchgate.net

Course Description Form

1.Course Name:	
Safety and biological security	
2.Course Code:	
3.Semester / Year:	
first semester/2023−2024	
4.Description Preparation Date:	
12/11/2023	
5.Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6.Number of Credit Hours (Total) / Number of Units (Total)	
24 hr./ 3Unit	
7.Course administrator's name (mention all, if more than one name)	
Name: Dr. Aasim Jasim Hussein Email: aasim.jasim @uoanbar.edu.iqdu.iq Name: Hana Yusif Rasheed Email: hanan.yousife @uoanbar.edu.iqdu.iq	
8.Course Objectives	
Course Objectives	This course aims to convey a general idea about: A. Introducing the student to Learn safety and biosecurity B. Preparing university teachers Safety concept C. Developing students' The importance of safety in working in laboratories D. That the student understands the concepts that maintain laboratories

9.Teaching and Learning Strategies

Strategy

Learning outcomes, teaching, learning and assessment methods

. A- Cognitive objectives

1- Extrapolation

2- Analysis

3- Conclusion

4-The lecture

5-Empowerment

B - The skills objectives of the course.

B1 - Developing the skill in knowing safety laws and using them in the practical aspect Developing the skill of how to deal with experiments in the laboratory
Developing the student's skill in dealing with the materials he works on in the laboratory

10.Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	An overview of the Biosafety	Biosafety	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Occupational Safety and Health	Biosafety	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	General objectives of the Occupational Safety and Health	Biosafety	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Occupational diseases	Biosafety	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	Biosafety	Biosafety	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	Biosafety in Microbiological laboratory	Biosafety in Microbiological laboratory	2 Theoretical + 2 practical	٦
motivational	Blackboard	What are biological hazards	biological	2 Theoretical	٧

questions	and data show		hazards	+ 2 practical	
motivational questions	Blackboard and data show	Common diseases caused by biological factors	biological hazards	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Psychological state and mental of safety	The right choice for those working in laboratories	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	The division of labor system	The right choice for those working in laboratories	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Who is Hazardous waste	Hazardous waste	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Biological waste & Ttreatment and drainage methods	Hazardous waste	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	month exam 2	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	١٤

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)	Biosafety and the environment: An introduction to the Cartagena ١٩-
Main references (sources)	20-
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	https://www.uoanbar.edu.iq/staff-page.php?ID=1094

Course Description Form

1.Course Name:	
organic chemistry	
2.Course Code:	
CHE121	
3.Semester / Year:	
Second semester/2023-2024	
4.Description Preparation Date:	
1/2/2024	
5.Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6.Number of Credit Hours (Total) / Number of Units (Total)	
60 hr./2 Units	
7.Course administrator's name (mention all, if more than one name)	
Name: Zeyad Khudhur Abdullrazaq Name: rua tariq hammad Email: zeyad.kudher@uoanbar.edu.iq Email: roaatariq@uoanbar.edu.iq	
8.Course Objectives	
Course Objectives	This course aims to introduce the student to the groups of organic compounds, prepara methods of organic compounds and their reactions moreover their nomenclature, the sec course includes aromatic compound (benzene), its nomenclature, its reactions and aromati characteristic
9.Teaching and Learning Strategies	
Strategy	• **Enable the student to obtain theoretical scientific knowledge of orga chemistry.** • **Introducing the student to methods of preparing chemical compounds.** • **The student's understanding of how chemical reactions occur.** • **The student is proficient in conducting experiments and using equipm efficiently.** • **The student must master the nomenclature of organic compounds.** • **Distinguish between alkane, alkene, alkyne and aromatic compounds.** • **Study the role of functional groups and their role in reactions**

10.Course Structure

The week	hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
١	٢ theoretical + 2 practical	Elements and compounds, the electronic Configuration	General introduction	Lecture + laboratory	Weekly and monthly exams And laboratory reports
٢	٢ theoretical + 2 practical	The Covalent bond, Polarity of Molecules, Acids and bases	General introduction	Lecture + laboratory	Weekly and monthly exams
٣	٢ theoretical + 2 practical	Interaction and their types, Resonance	General introduction	Lecture + laboratory	And laboratory reports
٤	٢ theoretical + 2 practical	Forces between molecules and hydrogen bonds	General introduction	Lecture + laboratory	Weekly and monthly exams
٥	٢ theoretical + 2 practical	Properties of alkanes and their industrial sources	Alkanes	Lecture + laboratory	And laboratory reports
6	٢ theoretical + 2 practical	Specific rotation (methane ….butane)	Alkanes	Lecture + laboratory	Weekly and monthly exams
7	٢ theoretical + 2 practical	Systems structural formula, nomenclature of alkanes	Alkanes	Lecture + laboratory	And laboratory reports
8	٢ theoretical + 2 practical	Preparation alkanes and their reactions	Alkanes	Lecture + laboratory	Weekly and monthly exams
9	٢ theoretical + 2 practical	Chain reaction, Analysis of alkanes	Alkanes	Lecture + laboratory	And laboratory reports
10	٢ theoretical + 2 practical	Physical properties ,nomenclature of alicyclic compounds	CycloAlkanes	Lecture + laboratory	Weekly and monthly exams
11	٢ theoretical + 2 practical	Properties of alicyclic compounds- Reaction of alicyclic compounds and their conformation	CycloAlkanes	Lecture + laboratory	And laboratory reports
12	٢ theoretical + 2	Nomenclature of alkenes- Physical properties of alkenes, π orbital	Alkanes	Lecture + laboratory	Weekly and monthly exams

	practical				
13	**٢ theoretical + 2 practical**	**Properties of alkenes - Reaction of alkenes**	**Alkanes**	**Lecture + laboratory**	**And laboratory reports**
14	**٢ theoretical + 2 practical**	**Dienes, their nomenclature, their reaction, their preparation**	**Alkanes**	**Lecture + laboratory**	**Weekly and monthly exams**
15	**٢ theoretical + 2 practical**	**Alkynes, structure of acetylene, their properties, their, acidity of alkynes**	**Alkanes**	**Lecture + laboratory**	**And laboratory reports**

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, L . G . WA D E , J R . Organic Chemistry R.T. Morrison and R. N. Boyd's**
Main references (sources)	**Organic chemistry Francis Carey**
Recommended books and references (scientific journals, reports…)	**Eighth Edition, 2013, Pearson Education, Inc. in the United States of America.**
Electronic References, Websites	**https://www.labxchange.org/topic/chemistry-middle-chemical-reactions**

Course Description Form

1. Course Name:
Applied Bacteriology
2. Course Code:
BIO462
3. Semester / Year: first
first semester/2023−2024
4. Description Preparation Date:
12.11.2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Haidar Kadum Yakob Email: halsalamany@uoanbar.edu.iq Name: Wijdan Hameed Email: wijdan.hameed@uoanbar.edu.iq
8. Course Objectives

Course Objectives	A. Shedding light on modern bacteriological techniques. B. teaching students many of the skills of these techniques, such as isolation and identification of bacteria in food, water, and air.
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods A- Cognitive objectives A1- The student's ability to discern, cognitive perception and modern practical research methods. A2- Provide the student with knowledge and understanding of the main principles of bacteriology. A3- Introducing the student to modern techniques in the study of bacteriology and the basic methods of distinguishing between different bacterial species. B - The skills objectives of the course. B1- The student should be able to distinguish between the different

	bacterial genus. B2- Providing the student with knowledge of how to prepare bacterial slides and describe and distinguish species. B3- Providing the student with the skill of linking the theoretical and practical part of the scientific material

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
Short questions	Lecture + laboratory	General characteristics of bacteria, and general importance	Introduction to bacteriology	1 theoretical ٢ practical	**the first**
A comparison between the types of tissues	Lecture + laboratory	Structure of bacteria Applied bacteria	Applications of bacteria	1 theoretical ٢ practical	**the second**
Short questions	Lecture + laboratory	Bacteria in water	Water bacteriology	1 theoretical ٢ practical	**the third**
Homework	Lecture + laboratory	Bacteria in west water	Sewage bacteriology	1 theoretical ٢ practical	**the fourth**
Short questions	Lecture + laboratory	The main characteristics of soil bacteria, with samples	Soil bacteriology	1 theoretical ٢ practical	**Fifth**
Short questions	Lecture + laboratory	The main characteristics of nitrogen fixing bacteria	Nitrogen fixing bacteria	1 theoretical ٢ practical	**Sixth**
Electronic test (various questions)		Semester test 1		1 theoretical ٢ practical	**Seventh**
Writing a report on preparing a tissue sample	Lecture + laboratory	The main characteristics of air bacteria, with samples	Air bacteriology	1 theoretical ٢ practical	**Eighth**

Short questions	Lecture + laboratory	The main characteristics of antibiotics , with their tests	Antibiotics	1 theoretical ٢ practical	**Ninth**
Short questions	Lecture + laboratory	The main characteristics , with samples	MIC tests	1 theoretical ٢ practical	**The tenth**
Short questions	Lecture + laboratory	The main characteristics , with samples	MBC tests	1 theoretical ٢ practical	**eleventh**
Short questions	Lecture + laboratory	The main characteristics , with samples	Antibiotic sensitivity test	1 theoretical ٢ practical	**twelveth**
Short questions	Lecture + laboratory	The importance of the test, samples	Agar disc methods	1 theoretical ٢ practical	**Thirteenth**
Short questions	Lecture + laboratory	The importance of the test, samples	Agar well methods	1 theoretical ٢ practical	**fourteenth**
Various questions		Semester test 2		1 theoretical ٢ practical	**Fifteenth**

11. Course Evaluation

Daily and monthly and final exams
With the student performing the practical aspect in laboratory along with homework assignments

12. Learning and Teaching Resources

Required textbooks (curricular books any)	Dathar, Vasavi. (2024). Textbook of Applied Microbiology رضا طه. الميكروبيولوجيا التطبيقية.
Main references (sources)	
Electronic References, Websites	https://www.slideshare.net/VamsiIntellectual/25applied-bacteriologypdf

Course Description

1.Course Name:
Headway Beginner (1st Grade)
2.Course Code:
3.Semester / Year:
Semester
4.Description Preparation Date:
28/2/2024
5.Available Attendance Forms:
6.Number of Credit Hours (Total) / Number of Units (Total)
30 ours / 15 units
7.Course administrator's name (mention all, if more than one name)
Name: Prof.Dr. Ali Sabah Jameel Email: alisabah40@uoanbar.edu.iq
8.Course Objectives

Course Objectives	• Training students in creative reading. • Mastering language skills, mastering writing, and developing a cognitive vocabulary store. • The ability to use multiple types of reading, understand written materials. • Ability to distinguish between concepts, and analyze text to divide information into parts. • Forming a coherent cognitive text that expresses information in a specific field.
9.Teaching and Learning Strategies	
Strategy	Modern lecture, group work, and using technology tool.

13. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	**To be able to welcome people**	**Hello.**		
2	2	**To be able to ask about people**	**Your World.**		
3	2	**To be able to introduce oneself.**	**All About You.**		

4	2	**To be able to introduce family and friends and ask questions about friends.**	**Family and Friend**		
5	2	**To identify vocabulary about our life.**	**The Way Live**		
6	2	**To identify daily vocabulary.**	**Every Day.**		
7	2		**Mid-Term Exam**		
8	2	**To speak about Favourites**	**My Favourites.**		
9	2	**To ask personal information.**	**Where I live.**		
10	2	**To form past tense sentences.**	**Times Past.**		
11	2	**To speak about our daily time.**	**We had Great tim**		
12	2	**To express our abilities and the verbs related to them.**	**I can Do It!**		
13	2	**To use language functions.**	**Please and Thank**		
14	2	**To use daily expressions.**	**Here and Now**		
15	2	**To express about future plans.**	**It's Time to Go!**		

10.Course Evaluation

The evaluation process consisted of 2 mid-term exams allotted 40 marks, and summative exam allotted 60 marks.

11.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Headway Beginner
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

1.Course Name:
Headway Plus Pre-Intermediate (2nd Grade)
2.Course Code:
3.Semester / Year:
Semester
4.Description Preparation Date:
2/2/2024
5.Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30 ours / 15 units
7.Course administrator's name (mention all, if more than one name)
Name: Prof.Dr. Ali Sabah Jameel Email: alisabah40@uoanbar.edu.iq
8.Course Objectives

Course Objectives	• Training students in creative reading, mastering language skills, mastering writing, and developing a cognitive vocabulary store. • The ability to use multiple types of reading. • understand written materials, distinguish between concepts, and analyze text to divide information into parts. • Forming a coherent cognitive text that expresses information in a specific field.

9.Teaching and Learning Strategies

Strategy	Modern lecture, group work, and using technology tool.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	**As mentioned in item 8**	**Getting to Know You**		
2	2	**As mentioned in item 8**	**Whatever Makes You Happy.**		
3	2	**As mentioned in item 8**	**What's in the News.**		
4	2	**As mentioned in item 8**	**Review Units 1, 2, and 3.**		
5	2	**As mentioned in item 8**	**Eat, Drink. And be Merry!**		
6	2	**As mentioned in item 8**	**Looking Forward.**		
7	2	**As mentioned in item 8**	**The Way I see it.**		

8	2	**As mentioned in item 8**	**Mid-Term Exam**		
9	2	**As mentioned in item 8**	**Living History.**		
10	2	**As mentioned in item 8**	**Girls and Boys.**		
11	2	**As mentioned in item 8**	**Time for a Story.**		
12	2	**As mentioned in item 8**	**Our Interactive World.**		
13	2	**As mentioned in item 8**	**Life's What you make it!**		
14	2	**As mentioned in item 8**	**Just Wondering.**		
15	2	**As mentioned in item 8**	**Review Units 7 -12.**		

11.Course Evaluation

The evaluation process consisted of 2 mid-term exams allotted 40 marks, and summative exam allotted 60 marks.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Headway Plus Pre-Intermediate
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

1.Course Name:
Headway Plus Intermediate (3rd Grade).
2.Course Code:
3.Semester / Year:
2nd Semester
4.Description Preparation Date:
2/2/2024
5.Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30 ours / 15 units
7.Course administrator's name (mention all, if more than one name)
Name: Prof.Dr. Ali Sabah Jameel Email: alisabah40@uoanbar.edu.iq
8.Course Objectives

Course Objectives	• Training students in creative reading. • Mastering language skills, mastering writing, and developing a cognitive vocabulary store. • The ability to use multiple types of reading. • Understand written materials, and distinguish between concepts. • Analyze text to divide information into parts. • Forming a coherent cognitive text that expresses information in a specific field

9.Teaching and Learning Strategies

Strategy	Modern lecture, group work, and using technology tool.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	**As mentioned in item 8**	**It's wonderful world.**		
2	2	**As mentioned in item 8**	**Get Happy.**		
3	2	**As mentioned in item 8**	**Telling Tales.**		
4	2	**As mentioned in item 8**	**Review Units 1, 2, and 3.**		
5	2	**As mentioned in item 8**	**Doing the Right Thing.**		
6	2	**As mentioned in item 8**	**On the Move.**		
7	2	**As mentioned in item 8**	**Just Love it.**		

8	2	**As mentioned in item 8**	**Mid-Term Exam**		
9	2	**As mentioned in item 8**	**The world of Work.**		
10	2	**As mentioned in item 8**	**Just Imagine!**		
11	2	**As mentioned in item 8**	**Getting on Together.**		
12	2	**As mentioned in item 8**	**Obsessions.**		
13	2	**As mentioned in item 8**	**Tell me about It!**		
14	2	**As mentioned in item 8**	**Life's Great Events!**		
15	2	**As mentioned in item 8**	**Review Units 7 -12.**		

12.Course Evaluation

The evaluation process consisted of 2 mid-term exams allotted 40 marks, and summative exam allotted 60 marks.

13.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Headway Plus Intermediate.
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description

1.Course Name:
Headway Plus Upper- Intermediate (4th Grade).
2.Course Code:
3.Semester / Year:
2nd Semester
4.Description Preparation Date:
2/2/2024
5.Available Attendance Forms:
Attendance in classrooms
6.Number of Credit Hours (Total) / Number of Units (Total)
30 ours / 15 units
7.Course administrator's name (mention all, if more than one name)
Name: Prof.Dr. Ali Sabah Jameel Email: alisabah40@uoanbar.edu.iq
8.Course Objectives

Course Objectives	• Training students in creative reading. • Mastering language skills, mastering writing, and developing a cognitive vocabulary store. • The ability to use multiple types of reading. • Understand written materials, and distinguish between concepts. • Analyze text to divide information into parts. • Forming a coherent cognitive text that expresses information in a specific field

9.Teaching and Learning Strategies

Strategy	Modern lecture, group work, and using technology tool.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or Subject Name	Learning Method	Evaluation Method
1	2	**As mentioned in item 8**	**No place Like Home.**		
2	2	**As mentioned in item 8**	**Been there, Done That!**		
3	2	**As mentioned in item 8**	**What a Story.**		
4	2	**As mentioned in item 8**	**Review Units 1, 2, and 3.**		
5	2	**As mentioned in item 8**	**Nothing But the Truth.**		
6	2	**As mentioned in item 8**	**An Eye to the Future.**		

7	2	**As mentioned in item 8**	**Making it Big.**		
8	2	**As mentioned in item 8**	**Mid-Term Exam**		
9	2	**As mentioned in item 8**	**Getting on together.**		
10	2	**As mentioned in item 8**	**Going to Extremes.**		
11	2	**As mentioned in item 8**	**Things ain't What they Used to Be!**		
12	2	**As mentioned in item 8**	**Risking Life and Limb.**		
13	2	**As mentioned in item 8**	**In Your Dreams.**		
14	2	**As mentioned in item 8**	**It is Never too Late.**		
15	2	**As mentioned in item 8**	**Review Units 7 -12.**		

11.Course Evaluation

The evaluation process consisted of 2 mid-term exams allotted 40 marks, and summative exam allotted 60 marks.

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Headway Plus Upper- Intermediate.
Main references (source)	
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description Form

1. Course Name:
Micro techniques (Microscopic Preparations)
2. Course Code:
BIO141
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Haitham Lateef Abdulhadi Name: Assist. Instructor Muhammad Abdel Aziz Ismail Abdel Aziz Al-Rawi Email: haytham.lateif@uoanbar.edu.iq Email mohammeda.ismael@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1) Introducing the student to the science of microscopic preparations 2) Introducing the student to the types of microscopic preparations 3) Identify methods of anesthetizing animals 4) Learn to prepare a permanent and temporary educational segment.

9. Teaching and Learning Strategies

Strategy	Learning outcomes, teaching, learning and assessment methods A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B. 1. Providing the student with knowledge related to preparing cellula samples for microscopic measurements B. 2. Providing the student with knowledge of the structure and types the microscope and how it works

	B. 3. Providing the student with knowledge of how to prepare tempora and permanent slides B. 4. Providing the student with the skill of linking the theoretical and practical parts of the scientific subject B. 5. The student should use illustrative means such as posters and videos related to the scientific subject. C- Emotional and value-based goals C1- Motivating teamwork among students C2- Developing the student's skills and thinking. C3- Stimulating brainstorming among students. D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Verbal teaching behavior skills such as discussion, dialogue, explanation, and interpretation. D2- Non-verbal teaching behavior skills, such as visual contact betwee the teacher and the student, and use of means of illustration such educational videos and pictures. D3- Planning skill: such as the skill of determining the lesson topic, usi appropriate methods, and preparing questions

10. Course structure

Evaluation method	Teaching method	Types of microscopes	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	The relationship of microscopic preparations with other sciences	Identify the types of microscopes and their use	١ Theoretical + 2 practical	١
motivational questions	Blackboard and data show	General methods in microscopic preparations	Sciences that are related to the science of microscopic preparations	١ Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Non-sectional preparations (method)	non-sectional preparations (method), sectional preparations (method).	١ Theoretical + 2 practical	٣
motivational	Blackboard	Examples of	Varieties of non-	١ Theoretical	٤

questions	and data show	sectional preparations	sectional preparations	+ 2 practical	
motivational questions	Blackboard and data show	Types of microscopes	the anointing method, the crushing or mashing method	١ Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	The first theoretical test	The first theoretical test	١ Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Sectional preparations (method)	Sectioning methods	١ Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Steps to make histological sections mounted on glass slides	Obtain the sample	١ Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	fixation	types and classification of fasteners	١ Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Some commonly used types of fixation	Identify the most famous stabilizers	١ Theoretical	١٠
motivational questions	Blackboard and data show	Explanation of the rest of the steps	Steps to prepare a permanent chip	١ Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Freezing technique	Cases that use the freezing method	١ Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	The second theoretical test	The second theoretical test	١ Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data	*The student's understanding of the	*The student's knowledge of the connection between	١ Theoretical + 2 practical	١٤

	show	materials studied during the semester	all of the previously mentioned, 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 any)	21- Al-Attar, Adnan Abdulla Al-Amir, Suhaila Mahmoud Al-Alef, and Kawkab Abdul Qadir Al-Mukhtar, Microscopic Preparations, Ministry of Higher Education and Scientific Research, Press of the Ministry of Higher Education and Scientific Research, University of Baghdad, 1982.
Main references (sources)	1) Al-Hajj, Hamid Ahmed, Optical microscopic preparations, Dar Al-Masirah for Publishing, Distribution and Printing, Amman, 2510. 2)Bancroft, J. and Stevens, A. Theory and Practice of Histological Techniques. Churchill Livingstone, London. 2002.
Recommended books and references (scientific journals, reports…)	• Microtechnique /Gray /1977 • Histology ,Atext and atlas / Ross and Pawlina /2006
Electronic References, Websites	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC498313/

Course Description Form

1. Course Name:
parasitology
2. Course Code:
3. Semester / Year:
semester/2023-2024
4. Description Preparation Date:
20/9/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. thaer abdulqader salih Email: sc.thaerparast@uoanbar.edu.iq Name: Assist. Instructor:Muhammad Hamada Musleh Email: mohammedhamada@uoanbar.edu.iq Name: Assist. Instructor: Hanan yousif rasheed Email: hanan.yousife@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Introducing the student to parasites, Introducing the student to parasites species, their classification, life cycle and their functions. B. Preparing slides C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educatio methods for teaching the subject of parasites science

9. Teaching and Learning Strategies

Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation

2- Analysis
3- Conclusion
4-The lecture
5-Empowerment
B - The skills objectives of the course.
B1 - Developing the skill in knowing the distribution of random variables and using them in the practical aspect

Providing the student with knowledge related to the study of parasites
Providing the student with knowledge of the types of parasites and their heir structure and shapes

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	The student learns the basic principles of parasite life	Introduction to parasitic organisms	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	The student learns the basic principles of parasitic species	Avant-garde objects	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	The student learns the meaning of life cycles and the transmission of parasites	Methods of transmission of parasites	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	The student will learn the concept of bodily cavities	Bodily cavities	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	The student knows the concept of multiple environments for parasites to live in	Environments for parasites	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	The student will learn the concept of feeding processes for parasitic organisms	Feeding on parasites	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	The student understands the meaning of the types of parasitic protozoa	An introduction to parasitological protozoa	2 Theoretical + 2 practical	٧
motivational	Blackboard	The student should	Introduction to	2 Theoretical	٨

questions	and data show	know the meaning of parasitic worms	helminthology	+ 2 practical	
motivational questions	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	The student will learn the concept, components, and structure of eukaryotic parasitic organisms	Eukaryotic parasitic protozoa	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	The student will learn the concept, types and structure of parasitic worms	parasitic worms	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The student learns the location and methods of diagnosing parasitic protozoa	Diagnostic and staining methods	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions	Understand the lecture topic	2 Theoretical + 2 practical	١٤
motivational questions with the grade	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	١٥

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)	Modern Parasitology
Main references (sources)	Medical parasitology
Recommended books and references (scientific journals, reports…)	Parasitology books
Electronic References, Websites	www.msdmanuals.com

Course Description

1. Course Name:
Educational Administration
2. Course Code:
3. Semester / Year:
First Semester - 2023-2024
4. Description Preparation Date:
17/9/2023
5. Available Attendance Forms:
Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
45 hours/45 credits
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Muthana Ismael Turki(PhD.) Email:: **miturki@uoanbar.edu.iq**
8. Course Objectives

Course Objectives	**- To familiarize the student with educational administrative concepts.** **- To acquaint them with developments in educational administrative work.** **- To understand what makes a successful administrator.** **- To understand what makes a successful classroom manager.** **- To develop the student's ability to solve future problems.**
9. Teaching and Learning Strategies	
Strategy	Discussion and Interaction Method - Feedback - Brainstorming Problem-solving Method - Assigning students various activities and assignments - Active participation and quizzes

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	2	Receptivity and understanding	Administrative Process	The lecture	Oral and written tests
The second	2	Receive and discuss	Key Administrative Fields	The lecture	Oral and written tests

the third	2	Receive and discuss	Details of Educational Administration	The lecture	Exams
the fourth	2		Administrative Fields		
Fifth	2		Planning and organizing		
The sixth	2		Leadership Styles		
The seventh	2		Planning and the Plan		
The eighth	2		Administrative Elements		
The ninth	2		Administrative Skills		
The tenth	2		Classroom Management	The lecture	Exams
eleventh	2	Receive and discuss	Educational Issues	The lecture	Exams
Twelfth	2	Receive and discuss	Educational Policy and Planning	The lecture	Exams
Thirteenth	2	Receive and discuss	Modern Management Styles	The lecture	Oral and written tests
fourteenth	2	Receive and discuss	Educational Supervision	The lecture	Oral and written tests
Fifteenth	2	Receive and discuss	Comprehensive Planning	The lecture	Exams

11.Course Evaluation	
Distributing the score out if 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)	Administration, Supervision, and Secondary Education Contemporary Educational Administration"
Main references (source)	Educational Management and Supervision
Recommended books and references (scientific journals, reports…)	Lectures in Educational Administration
Electronic references, websites.	

Course Description Form

1. Course Name:
Immunology
2. Course Code:
BIO471
3. Semester / Year:
Second semester/2023-2024
4. Description Preparation Date:
٢٠٢٤/٣/٢٣
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: lecturer. mohammed abdul aziz ismail Email: **mohammeda.ismael@uoanbar.edu.iq** Assist. lecturer Wijdan Hameed Abd Al-Razzaq Email: **wijdan.hameed@uoanbar.edu.iq** Assist. lecturer SAIF SUBHI NOORI Email: **Saifsubhy89@uoanbar.edu.iq**
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the subject of immunity 2-The student will be familiar with the concept of the immune system 3- The student should understand the types of immunity 4- That the student understands the concepts of the body's immunity
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment

B - The skills objectives of the course.

B1 - Developing the skill in knowing the distribution of random variables and using them in the practical aspect

The skill of identifying the causes of many immune diseases
The skill of self-development by giving him information that will benefit him in the emic future
It enables the student to use what he has learned to develop himself

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	The student learns the basic principles of immunology	Definition of immunology and its relationship to other sciences	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	The student learns the basic types of immune barriers	Immune barriers	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	The student learns the types of lymphatic organs	Lymphatic organs and tissues	2 Theoretical + 2 practical	٣
motivational questions	The student will learn the concept of cellular elements	The student will learn the concept of cellular elements	Cellular elements of the immune system	2 Theoretical + 2 practical	٤
		The student learns how to do a comprehensive review of the subject, and the student notices the extent of his understanding of what has been studied by taking the first month's exam.	First month exam	An attendance exam	٥
motivational questions	Blackboard and data show	The student will learn the concept of antigens	Antigens and inhibitors	2 Theoretical + 2 practical	٦
motivational	Blackboard	The student understands	Immunoglobulins	2 Theoretical	٧

questions	and data show	the types of antibodies		+ 2 practical	
motivational questions	Blackboard and data show	The student knows the meaning and types of surface signs	Surface markers	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	The student learns the mechanisms and types of phagocytosis	Phagocytosis	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	The student will learn the concept of the immune response and its mechanisms	Primary immune response	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	The student will learn the concept of humoral and cellular responses	Humoral and intermediate response of cells	2 Theoretical + 2 practical	١١
		The student learns how to do a comprehensive review of the subject, and the student notices the extent of his understanding of what has been studied by taking the second month exam	The second month exam.	An attendance exam	١٢

11.Course Evaluation

Distributing the score out of ٤٠ 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)	Systematic book on immunology
Main references (sources)	**Zimmermann, K. (2018, October 17). Immune System: Diseases, Disorders & Function. Retrieved June 26, 2020, from https://www.livescience.com/26579-immunesystem.html**
Recommended books and references (scientific journals, reports...)	**Department of Health & Human Services. (2014, March 30). Immune system. Retrieved July 27, 2020, from https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/immune-system**
Electronic References, Websites	**https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/immune-system**

Course Description Form

1. Course Name:
Embryology
2. Course Code:
BIO242
3. Semester / Year:
Second semester/2023−2024
4. Description Preparation Date:
12/02/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Nafi Ahmed Saud Eman Eman Naji Saleh Email: nafi.saud@uoanbar.edu.iq Name: Assist. Instructor: Eman Naji Saleh Email: aemanng349@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1- This course aims to provide the student with basic information about embryology and the stages that the embryo goes through during its formation, such as the stages of gametogenesis , fertilization, cleavage, endocytosis, the formation of the three embryonic layers, the organelle stage, the formation of some basic organs, and their comparison between different embryos. 2- Identify the modern techniques used in external fertilization(IVF) a artificial insemination

9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture

	5-Empowerment 1. The student's familiarity with the history of the development of cell science, and the basic structures and purposes of the components of prokaryotic and eukaryotic cells, especially molecules, membranes, and organelles. 2. Knowing the cellular components behind cell division processes, and using these components to generate energy in cells. 3. The student works by applying knowledge of cell biology to the causes of change or loss of cell functions, which may include environmental and physiological changes and the emergence of mutations.B - The skills objectives of the course. B1 - - Bringing ideas to make embryology practical, possible and accessible to government health institutions. B2- Making comparisons between advanced embryology laboratories and what they are like in our laboratories in terms of proposing possible ways to equip advanced laboratories. B3- Conduct distinguished, unconventional scientific research, such as a PowerPoint presentation supported by pictures and video clips. B4- Developing creative ideas to link embryology to the scientific miracle and seeking assistance from the international scientific institution for the scientific miracle. C- Emotional and value goals C1- Collecting scientific material from various sources to make presentations and present ideas, and demonstrate her skill in collecting, coordinating, presenting and dialogue. C2- Taking responsibility for completing her assignments on time, in a good and distinguished manner, and being disciplined in her work. C3- Cooperative education through the formation of work groups that agree to accomplish a task and evaluate the best groups, with the aim of spreading the spirit of cooperation, competition, and love of excellence. D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Assignment to research on Internet sites what is new and current regarding the development of embryology, especially in the field of electron microscopy and artificial insemination. D2- Stirring the mind through scientific translation, searching dictionaries for scientific terms and their meanings, and how to formulate a simple and smooth scientific translation. D3- Creating advanced presentation methods and discussing ways to employ them in teaching the subject.

	D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to devel himselfelf

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Definition of embryology and embryogenesis, evolutionary foundations	The student learns the basic principles of embryology and its history	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Spermatogenesis	The student will learn how the process Spermatogenesis takes place in different organisms	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Oogenesis	The student will learn how the process Oogenesis takes place in different organisms	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data	Fertilization	The student will learn the	2 Theoretical + 2 practical	٤

	show		concept of fertilization		
motivational questions	Blackboard and data show	Cleavage	The student should know the concept of Cleavage	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	First month exam		2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	Embryogenesis of Amphioxus	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	The process of gastrulation and organogenesis	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Frog Embryogenesis	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Embryonic formation in birds	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	Assisted reproductive technologies	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The properties of expectation,	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data	standing increases through enriching	Understand the lecture	2 Theoretical + 2 practical	١٤

	show	examples and questions Second month exam	topic		
motivational questions with the grade	Blackboard and data show		Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	Embryology, second edition, Dr. Kawakib Abdel Qader -
Main references (sources)	Physiology and Pathology of Reproductive System -٢٢ 2017, Assit.prof.Dr. Sabah Abdal Hameid A.Rahma
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Basics of Zoology
2. Course Code:
BIO242
3. Semester / Year:
Second semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Nafi Ahmed Saud SAIF SUBHI NOORI Email: nafi.saud@uoanbar.edu.iq Saifsubhy89@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: 1- Identifying aspects of life. 2- Identify the types of microscopes. 3- Identifying the cell, its organelles, and division, both its types: filamentous and meiotic. 4- Learn about the origin of life and evolution. 5- In addition to learning about the classification of living organisms general and the most important branches of zoology
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment 1a- Diversify the test questions to include multiple choice, true and

	false, connecting, enumeration, definition, and brief essay questions. 2a- That the student becomes familiar with zoology and its relationship with other sciences 3a- That the student recognizes enzymes and their role in the life of living organisms 4a- That the student recognizes chemical coordination in living organisms 5a- That the student learns about the conservation of biological diversity B - The skills objectives of the course. B1 - Introducing the student to the concept of zoology B2 - Identifying the aspects of life and their origin. B3 - Introducing the student to the environment and its role in the life of living organisms B4- Bringing ideas to make animal science applied, possible and accessible to government health institutions. B5- Conduct distinguished, unconventional scientific research, such as a PowerPoint presentation supported by pictures and video clips. C- Emotional and value goals C1- Collecting scientific material from various sources to make presentations and present ideas, and demonstrate her skill in collecting, coordinating, presenting and dialogue. C2- Taking responsibility for completing her assignments on time, in a good and distinguished manner, and being disciplined in her work. C3- Cooperative education through the formation of work groups that agree to accomplish a task and evaluate the best groups, with the aim of spreading the spirit of cooperation, competition, and love of excellence. D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Assignment to research on Internet sites what is new and current regarding the development of embryology, especially in the field of electron microscopy and artificial insemination. D2- Stirring the mind through scientific translation, searching dictionaries for scientific terms and their meanings, and how to formulate a simple and smooth scientific translation. D3- Creating advanced presentation methods and discussing ways to employ them in teaching the subject. D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to devel

	himselfelf

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	The importance of zoology, its branches, aspects of life and its origin.	The student learns the basic principles of zoology, its importance and history, and what are the aspects of life and their origin	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	Microscope and its types	The student gets to know the parts of the microscope and how it is used.	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	The cell and its organelles	The student learns what a cell is and what its organelles .	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Protoplasm and cytoplasm	The student gets to know protoplasm and its components	2 Theoretical + 2 practical	٤

motivational questions	Blackboard and data show	Cellular division	The student should know the concept of cellular division and its Phases	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	A comprehensive review of the article		2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	First month exam		2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Animal tissues	The student gets to know animal tissues and their types	4 Theoretical + 4 practical	٨
motivational questions	Blackboard and data show	Biodiversity	Understand the lecture topic To know the concept of biodiversity	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Classification systems	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	The animal kingdom and its phylum's	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	A comprehensive review of the article	Understand the lecture topic	2 Theoretical + 2 practical	١٢

motivational questions	Blackboard and data show	The properties of expectation,	Understand the lecture topic	4Theoretical + 4 practical	١٣
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٤
motivational questions.	Blackboard and data show	standing increases through enriching examples and questions Second month exam	Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	علم الحيوان العام د. محمد عمار الراوي د. فتحي الراوي د. مراد بابا مراد
Main references (sources)	علم الحيوان العام د. محمد عمار الراوي د. فتحي الراوي د. مراد بابا مراد علم الانسجة د. كواكب المختار
Recommended books and references (scientific journals, reports…)	Iraqi academic scientific journals
Electronic References, Websites	International Journals within Scopus containers

Course Description Form

1. Course Name:
Invertebrates
2. Course Code:
3. Semester / Year:
semester/2023−2024
4. Description Preparation Date:
20/9/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. thaer abdulqader salih . Email: sc.thaerparast@uoanbar.edu.iq Bashaar yassin . yaseen@uoanbar.edu.iq Hanan yousif rasheed hananyousife@gmail.com
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Introducing the student to invertebrates , Introducing the student to invertebrates species, their classification, life cycle and their functions. B. Preparing slides C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educational methods for teaching the subject of invertebrates science

9. Teaching and Learning Strategies

Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course.

	B1 - Developing the skill in knowing the distribution of random variables and using them in the practical aspect
	Providing the student with knowledge related to the study of invertebrates
	Providing the student with knowledge of the types of invertebrates and their heir structure and shapes

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	The student learns the basic principles of invertebrates life	Introduction to invertebrates organisms	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	The student learns the basic principles of invertebrates species	Avant-garde objects	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	The student learns the meaning of life cycles and the transmission of invertebrates	Methods of transmission of invertebrates	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	The student will learn the concept of bodily cavities	Bodily cavities	2 Theoretical + 2 practical	٤
motivational questions	Blackboard and data show	The student knows the concept of multiple environments for invertebrates to live in	Environments for invertebrates	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	The student will learn the concept of feeding processes for invertebrates organisms	Feeding on invertebrates	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	The student understands the meaning of the types of invertebrates protozoa	An introduction to parasitological protozoa (invertebrates)	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	The student should know the meaning of invertebrates worms	Introduction to helminthology	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	٩

motivational questions	Blackboard and data show	The student will learn the concept, components, and structure of eukaryotic invertebrates organisms	Eukaryotic invertebrates protozoa	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	The student will learn the concept, types and structure of invertebrates worms	invertebrates worms	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	The student learns the location and methods of diagnosing invertebrates protozoa	Diagnostic and staining methods	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Solve the questions and assignments that were given	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	Standing increases through enriching examples and questions	Understand the lecture topic	2 Theoretical + 2 practical	١٤
motivational questions with the grade	Blackboard and data show	month exam	Measure the level of knowledge and understanding	2 Theoretical + 2 practical	١٥

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)	**Modern Invertebrates**
Main references (sources)	**Medical invertebrates**
Recommended books and references (scientific journals, reports…)	**invertebrates books**
Electronic References, Websites	**https://ar.wikipedia.org/**

Course Description Form

1. Course Name:
Molecular Biology
2. Course Code:
BIO465
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Harith Kamil Buniya Email: hkbuniya@uoanbar.edu.iq Nuha Abdullah Mohammed Email: nuha.a.moh@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Introducing the student to molecular biology, its importance, its goals and its role B. Preparing university teachers with educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate teaching aids f teaching biology
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course.

	B1 - Providing the student with knowledge related to the study of molecular biology. B2 - Providing the student with knowledge of the structure of large molecules (DNA, RNA, and proteins) B3 - Providing the student with knowledge of the great importance of DNA, C- Emotional and value goals C1- Providing the student with knowledge of the structure and types of DNA and RNA C2- transmission from one generation to another, and its preservation of the genetic characteristics of cells. C3- Providing the student with the skill of linking the theoretical and practical part of the scientific material. D - Transferable general and qualifying skills (other skills related to employability and personal development). D1-The skill of knowledge of DNA Replication D2- The skill of knowledge of gene expression D3- The skill of knowing of Genetic engineering D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to develop himse

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Introduction to molecular Biology	Define the science and roles of some sciencests .	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	The most important experiments whose results led to understanding the nature of DNA	The importance of scientific research.	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	DNA replication in prokaryotic	The main steps for replication	2 Theoretical + 2 practical	٣
motivational	Blackboard	DNA replication in	The main steps for	2 Theoretical	٤

questions	and data show	Eukaryotic	replication and proteins	+ 2 practical	
motivational questions	Blackboard and data show	Gene expression	Introduction in gene expression	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	Transcription	The main steps for transcription	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show		Semester test 1	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	Translation	The main steps for translation	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	Genetic engineering	Introduction and The main steps of GE	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Expression system	The advantage for each expression system	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	PCR	Introduction and applied of PCR	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	Protein Engineering	Introduction and The main steps of protein engineering	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Gene Cloning	The main steps of gene cloning	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	Applied of Genetic engineering	The main categories of applied GE	2 Theoretical + 2 practical	١٤

motivational questions with the grade	Blackboard and data show		Semester test 2	2 Theoretical + 2 practical	١٥

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)	• عماش، هدى صالح مهدي، مبادئ علم الحياة الجزيئي (١٩٩٤). وزارة التعليم العالي والبحث العلمي – الجمهورية العراقية. • البكري، غالب ، مبادئ الهندسة الوراثية(١٩٩٠) جامعة البصرة. • الشهيب ، محد باقر، السعدي، علي حمود، مبادئ الوراثة الجزيئية (٢٠١٣).
Main references (sources)	23- Watson, J.D.; Baker, T.A,; Bell, S.P.; Gann, A. (2004.(Molecular Biology of the Gene 5th Ed. Pearson edution. 24- Clark, D. (2006). Molecular Biology Understanding the Genetic Revolution. Elsevier Inc.
Recommended books and references (scientific journals, reports…)	Santos, D.M. (2011). Genetic Engineering, Recent Developments in application. Apple Academic press.
Electronic References, Websites	https://NCBI.com

Course Description Form

1. Course Name:	
Plant morphology	
2. Course Code:	
Plant morphology / bio129	
3. Semester / Year:	
first semester/2023-2024	
4. Description Preparation Date:	
15/9/2023	
5. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
24 hr./ 3Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Baydaa abdull sttar Atiyah Email: sc.baidaa_atya@uoanbar.edu.iq Name: safa hamid Khalaf Email: safa.hamid@uoanbar.edu.	
8. Course Objectives	
Course Objectives	This course aims to convey a general idea about: 1- Introducing the student to the history of botany ,the most important science botany and the most important science belonging to this science . 2- Definition of plant morphology ,mentioning the type of phenotypic syste and evolutionary position of seed plants and the forms of pollination in plant 3- Study of all parts of the plants with their modification and shapes.
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods A- Cognitive objectives 1- The students' knowledge of plants in appearance . 2- Providing the student with knowledge of plants in appearance . Course-specific skills objectives. 1- Giving student the skill of collecting and how to diagnoses plants based on their external appearance for plants. 2- The student knows how to divide each part of the plant based on the characteristics and modified of plant part. 3- Giving the student skill of linking between the theoretical parts of the scientific material and for the student to use illustrative such us plants in their environment to see the natural plant. Emotional and value aims

	1- Spreading the spirit of interaction and attraction among students though academic competition . 2- Uring students to employ what they have learned in public life. 3- The skill of self-development by giving him information that will benefit him in the academic future . 4- It enables the student to use what he has learned to develop himself.

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
Attendance and quick question.	Lecture and laboratory	History of botany	History of botany ,the most important of pioneering scientists in this science	2 Theoretical + 2 practical	١
Attendance and quick question	Lecture and laboratory	The roots	The roots and modidfication	2 Theoretical + 2 practical	٢
Attendance and quick question	Lecture and laboratory	The stems	Stems ,types and modification	2 Theoretical + 2 practical	٣
Attendance and quick question	Lecture and laboratory	The leaves forms	Leaves 1, forms and modification	2 Theoretical + 2 practical	٤
Attendance and quick question	Lecture and laboratory	The leaves forms	Leaves 2, forms and modification	2 Theoretical + 2 practical	٥
Attendance exam(various questions)	-	First month exam	Determinate the students understanding of subject	The exam	٦
Attendance and quick question	Lecture and laboratory	The flowers	The flowers, symmetrical flora and aestivation	2 Theoretical + 2 practical	٧

Attendance and quick question	Lecture and laboratory	Calyx and corolla forms	Perianth (calyx , corolla)	2 Theoretical + 2 practical	٨
Attendance and quick question	Lecture and laboratory	Androecium forms	Essential parts (Androecium)	2 Theoretical + 2 practical	٩
Attendance and quick question	Lecture and laboratory	gynoecium:	Pistils (gynoecium)	2 Theoretical + 2 practical	١٠
Attendance and quick question	Lecture and laboratory	placentation.	Placentation (position of the ovary on the torus	2 Theoretical + 2 practical	١١
Attendance and quick question	Lecture and laboratory	cymose, Racemose and mixed	Inflorescence	2 Theoretical + 2 practical	١٢
Attendance exam(various questions.	-	Second month exam	Determinate the students understanding of subject	The exam	١٣
Attendance and quick question.	Lecture and laboratory	Fruits ,seeds	Fruits and seeds	2 Theoretical + 2 practical	١٤

11. Course Evaluation

Distributing the score out of 40 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)	1 -Al-musawi,ali hussain ,seed plant taxonomy (1987). 2 Al-katteb,yousef Mansur([pant taxonomy). 3 – flowering plant taxonomy.samah al-rehaly and rabab al-maliky. 4 –plant biology.abdul-malik al-elmy.natural science and life.setef college .Algeria.

Course Description Form

1. Course Name:	
Plant morphology	
2. Course Code:	
Plant taxonomy / bio129	
3. Semester / Year:	
second semester/2023-2024	
4. Description Preparation Date:	
15/2/2024	
5. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
24 hr./ 3Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Baydaa abdull sttar Atiyah Email: sc.baidaa_atya@uoanbar.edu.iq Name: safa hamid Khalaf Email: safa.hamid@uoanbar.edu.	
8. Course Objectives	
Course Objectives	This course aims to convey a general idea about: 4- Introducing the student to the history of plant taxonomy ,the most import science and science related to it. 5- Defining plant taxonomy ,mentioning to the aim of this science and the m important taxonomy systems. 6- The student gets acquainted with the modern trends in taxonomy introducing the taxonomy ranks. 7- The student knowledge of seed plants and their most important classes and different between them. 8- Identify the most important families of gymnosperm ,monocot and dicot.
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods A- Cognitive objectives 3- The students' knowledge of the history of taxonomy. 4- The student acquits knowledge about how to classify plants according to specific principles. 5- Identify the difference between advanced and primitive characteristics of plants. 6- Asking various inferential question according to characteristics of plants. . Course-specific skills objectives. 1- Developing the skill in knowing the distribution of plants and how to classify them in the practical aspect. 2- Developing the skill how to collect and preserve plant specimens dried or

solutions. .

Emotional and value aims

5- Explored thinking through (questions and answer)

6- Stimulating the sprits of interaction and attraction among student through academic competition.

7- The skill of self-development by giving him information that will benefit him in the academic future..

8- It enable the student to use what he has learned to develop himself..

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
Attendance and quick question.	Lecture and laboratory	History of taxonomy	History of taxonomy and aim of it	2 Theoretical + 2 practical	١
Attendance and quick question	Lecture and laboratory	Genus and species concept	Major and minor taxa	2 Theoretical + 2 practical	٢
Attendance and quick question	Lecture and laboratory	Angiosperms and gymnosperms	spermatophytes	2 Theoretical + 2 practical	٣
Attendance and quick question	Lecture and laboratory	Important families of it	Angiosperms	2 Theoretical + 2 practical	٤
Attendance exam(various questions)	-	First month exam	Determinate the students understanding of subject	The exam	٥
Attendance and quick question	Lecture and laboratory	Monocot and dicot ,different between it	Gymnosperms	2 Theoretical + 2 practical	٦
Attendance and quick question	Lecture and laboratory	Features of this families and importance of this	Selected families of dicot.	2 Theoretical + 2 practical	٧

		species			
Attendance and quick question	Lecture and laboratory	Features of this families and importance of this species	Selected families of dicot.	2 Theoretical + 2 practical	٨
Attendance and quick question	Lecture and laboratory	Features of this families and importance of this species	Selected families of dicot	2 Theoretical + 2 practical	٩
Attendance and quick question	Lecture and laboratory	Features of this families and importance of this species	Selected families of dicot)	2 Theoretical + 2 practical	١٠
Attendance and quick question	Lecture and laboratory	Features of this families and importance of this species	Selected families of monocot)	2 Theoretical + 2 practical	١١
Attendance and quick question	Lecture and laboratory	Features of this families and importance of this species	Selected families of monocot)	2 Theoretical + 2 practical	١٢
Attendance exam(various questions.	-	Second month exam	Determinate the students understanding of subject	The exam	١٣

Course Evaluation

Distributing the score out of 40 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

11. Learning and Teaching Resources

Required textbooks (curricular books any)	1 -Al-musawi,ali hussain ,seed plant taxonomy (1987). 2 Al-katteb,yousef Mansur([pant taxonomy). 3 – flowering plant taxonomy.samah al-rehaly and rabab al-maliky. 4 –plant biology.abdul-malik al-elmy.natural science and life.setef college .Algeria.

Course Description Form

1. Course Name:
Cellular metabolism
2. Course Code:
BIO474
3. Semester / Year:
Second semester/2023-2024
4. Description Preparation Date:
12/٢/202٤
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Luay Hatem Ali Email: hatemloay81@uoanbar.edu.iq Name: Nuha Abdullah Mohammed Email: nuha.a.moh@uoanbar.edu.iq
8. Course Objectives

Course Objectives	A.Introducing the student to metabolic reactions and their types within the cell B. Preparing university teachers with educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate teaching aids t teaching biology
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course.

	B1 1- The student should be able to distinguish between carbohydrate metabolism and proteins. 2- Providing the student with knowledge of how metabolism occurs inside the body. 3- Providing the student with the skill of linking the theoretical and practical part of the scientific material

10 .Course structure

the week	hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
the first	1 theoretical ٢ practical	Know the importance of cellular metabolism	Introduction to cellular metabolism	Lecture + laboratory	Short questions
the second	1 theoretical ٢ practical	Knowledge of material rotation paths	Types of metabolism and energy	Lecture + laboratory	Short questions
the third	1 theoretical ٢ practical	Understanding blood movement	Blood and lymph stream and transmission mechanism	Lecture + laboratory	Short questions
the fourth	1 theoretical ٢ practical	* Knowing the mechanism of metabolism	Carbohydrate metabolism	Lecture + laboratory	Homework
Fifth	1 theoretical ٢ practical	*Knowledge of physiological metabolic imbalances	Glycolysis cycle, Krebs cycle	Lecture + laboratory	Short questions
Sixth	1 theoretical ٢ practical	* Understanding the metabolic mechanism in lower organisms	Metabolism in low organisms	Lecture + laboratory	Short questions
Seventh	1 theoretical ٢ practical	Semester test	Semester test		Electronic test (various questions)
Eighth	1 theoretical ٢ practical	Student knowledge: *Causes of diabetes	Diabetes and its types	Lecture + laboratory	writing a report
Ninth	1 theoretical ٢ practical	The student understood glycogen storage	Glycogen storage imbalances	Lecture + laboratory	Short questions
The tenth	1 theoretical ٢ practical	The student knows how to metabolize proteins	Metabolism of proteins	Lecture + laboratory	Short questions

eleventh	1 theoretical ٢ practical	The student's knowledge of the metabolism of nitrous wastes	Nitrogenous wastes and their metabolism	Lecture + laboratory	Short questions
twelveth	1 theoretical ٢ practical	Knowledge of digestion and absorption of fats	Fat metabolism	Lecture + laboratory	Short questions
Thirteenth	1 theoretical ٢ practical	The student's knowledge of the importance of bile salts	The role of bile salts in digestion	Lecture + laboratory	Short questions
fourteenth	1 theoretical ٢ practical	Semester test	Semester test		Various 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, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, any)	
Main references (sources)	Medical Biochemistry: Human Metabolism in Health and Disease 1st Edition, 2019 Clinical Studies in Medical Biochemistry 3rd Edition
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Histology
2. Course Code:
BIO236
3. Semester / Year:
First semester/2023-2024
4. Description Preparation Date:
12/9/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Luay Hatem Ali Email: hatemloay81@uoanbar.edu.iq
8. Course Objectives

Course Objectives	A.Introducing the student to metabolic reactions and their types within the cell B. Preparing university teachers with educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate teaching aids t teaching biology

9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B1 The student should be able to distinguish between the different tissues in the animal's body 2- Providing the student with knowledge of how to prepare tissue slides and describe and distinguish tissues.. 3- Providing the student with the skill of linking the theoretical and practical part of the scientific material

10 .Course structure					
the week	**hours**	**Required learning outcomes**	**Name of the unit/course or subject**	**Teaching method**	**Evalua method**
the first	1 theoretical ٢ practical	Know the types of animal tissues	Introduction to Animal Histology	Lecture + laboratory	Short questio
the second	1 theoretical ٢ practical	Simple and false epithelial knowledge	Covering and lining epithelial tissue	Lecture + laboratory	Short questio
the third	1 theoretical ٢ practical	Knowledge of the structure of glands	Applied epithelial tissue	Lecture + laboratory	Short questio
the fourth	1 theoretical ٢ practical	*Knowledge of the structure of bone and cartilage	Skeletal connective tissue	Lecture + laboratory	Homew
Fifth	1 theoretical ٢ practical	* Know the difference between white and red blood cells and platelets	Blood: Types of blood cells	Lecture + laboratory	Short questio
Sixth	1 theoretical ٢ practical	*Understanding the stages of blood formation	Stages of blood formation	Lecture + laboratory	Short questio
Seventh	1 theoretical ٢ practical	Semester test	Semester test 1		Electro test (va questio
Eighth	1 theoretical ٢ practical	Student knowledge:	Muscle tissue	Lecture + laboratory	writing report
Ninth	1 theoretical ٢ practical	* Muscle fiber structure	Nervous tissue	Lecture + laboratory	Short questio
The tenth	1 theoretical ٢ practical	The student's knowledge of how nervous tissue works	Neuroglia	Lecture + laboratory	Short questio
eleventh	1 theoretical ٢ practical	Student Arafa Central nervous system sheaths	Circulatory device	Lecture + laboratory	Short questio
twelveth	1 theoretical ٢ practical	The student's knowledge of vessels and lymphatic capillaries	Lymphatic vascular system	Lecture + laboratory	Short questio
Thirteenth	1 theoretical ٢ practical	The student's knowledge of the work of the spleen and almonds	Lymphatic organs	Lecture + laboratory	Short questio
fourteenth	1 theoretical ٢ practical	*Understanding the structure of skin and epidermis	The integumentary device		Various questio

10. 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
11. Learning and Teaching Resources

Required textbooks (curricular books any)	
Main references (sources)	- Histology c 1 and c 2 / d. Kawakeb Abdul Qadir Al-Mukhtar and d. Abdul Hakim Al-Rawi -Basic- histology C. L, Junqueira & Cameira. J,. (2005). - Text book of veterinary histology (Dellmann and Brown, third edition, 1987).
Recommended books and references (scientific journals, reports…)	Junqueira's Basic Histology Text & Atlas (14th ed.), 2016
Electronic References, Websites	

Course Description

1. Course Name:
Human rights and democracy
2. Course Code:
3. Semester / Year:
Semester 1/ 2023-2024
4. Description Preparation Date:
17/9/2023
5. Available Attendance Forms:
Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours/30 credits
7. Course administrator's name (mention all, if more than one name)
Name: Ahmed Falah Hassan Email : ahm19a4022@uoanbar.edu.iq
8. Course Objectives

Course Objectives	**-Informing students about human rights in ancient, medieval, and modern times** **-Developing the student's cultural awareness** **-Informing the student about the experiences of nations and the most important internatic resolutions, charters and instruments**
9. Teaching and Learning Strategies	
Strategy	Learning and teaching strategies and methods dependent in implementation of the program in general.

10. Course Structure

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

the first	2	Receptivity and understanding	Introduction to the truth and the concept of human rights	The lecture	Oral and written tests
The second	2	Receive and discuss	Human Rights in Islam	The lecture	Oral and written tests
the third	2	Receive and discuss	Human rights in the Middle Ag	The lecture	Exams
the fourth	2	Receive and discuss	Human rights in modern times	The lecture	Real-time tests
Fifth	2	Receive and discuss	Content of human rights at the level of international instrumen	The lecture	the exams
The sixth	2	Receive and discuss	Content of human rights at the national level	The lecture	daily exams
The seventh	2	Receive and discuss	Contemporary recognition of human rights at the internationa level	The lecture	Oral and written tests
The eighth	2	Receive and discuss	Contemporary recognition of human rights at the NGO level	The lecture	Oral and written exams
The ninth	2	Receive and discuss	Guarantees and protection of constitutional human rights at the national level	The lecture	Exams
The tenth	2	Receive and discuss	Guarantees and protection of political human rights at the national level	The lecture	exams
eleventh	2	Receive and discuss	Forms and generations of human rights	The lecture	exams
Twelfth	2	Receive and discuss	The phenomenon of administrativ corruption	The lecture	Exams
Thirteenth	2	Receive and discuss	Types and classification of corruption phenomenon	The lecture	Oral and written tests
fourteenth	2	Receive and discuss	Successful methodological remedies for combating corruptio and protecting society from it	The lecture	Oral and written tests
Fifteenth	2	Receive and discuss	Democracy, its concept, definitio characteristics, features	The lecture	Exams

11. Course Evaluation

Distributing the score out if 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)	**Sabri Al-Hadithi, human rights**
Main references (source)	**Ministerial Approach by Sabri Al-Hadithi, Human Rights**
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Course Description Form

1. Course Name:

Archegonia
2. Course Code:
BIO244
3. Semester / Year:
2nd semester/2023−2024
4. Description Preparation Date:
4/2/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 3Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Harith Kamil Buniya Email: hkbuniya@uoanbar.edu.iq Hind Hamid Hasan Email: hind.hamid@uoanbar.edu.iq
8. Course Objectives

Course Objectives	This course aims to convey a general idea about: A. Introducing the student to the science of Archigonia, their types, the environments in which they live. B. Preparing university teachers who possess the educational skills to teach biology C. Developing students' scientific attitudes to develop their own abilities D. To provide students with how to innovate educational methods for teaching biology and science

9. Teaching and Learning Strategies

Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the main groups of this plants B2 - Developing the skill of how to distinguish between bryophyte,

	pitrediphyta and Gymenosperm. B3 - Developing the skill of employing the properties of nonflowering plants for use in the practical aspect of life C- Emotional and value goals C1- Thinking that explores the truth through (question and answer) C2- Managing nonflowering plant and main groups through academic concepts C3- Spreading the spirit of interaction and attraction among students through academic competition C4- Urging students to employ what they have learned in public life D - Transferable general and qualifying skills (other skills related to employability and personal development). D1-The skill of identification D2- The skill of classification D3- The skill of knowing the degree of correlation between different groups. D4- The skill of self-development by giving him information that will benefit him in the academic future D5- It enables the student to use what he has learned to develop himse

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Introduction of Archigonia	Understand the lecture topic	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	The main groups of Archigonia and its classification	Understand the lecture topic	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	Ecology and their characteristics	Understand the lecture topic	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	Bryopyta, main characteristics.	Understand the lecture topic	2 Theoretical + 2 practical	٤

motivational questions	Blackboard and data show	*Riccia*, the main characteristics and life cycle	Understand the lecture topic	2 Theoretical + 2 practical	٥
motivational questions	Blackboard and data show	*Marchamtia*. Main characteristics and life cycle	Understand the lecture topic	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	1st Semester test	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	*Anthoceros*, Main characteristics and life cycle	Understand the lecture topic	2 Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	*Sphagnium* Main characteristics and life cycle	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	Ptridophyta, Main characteristics	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	*Lycopodium* Main characteristics and life cycle	Understand the lecture topic	2 Theoretical + 2 practical	١١
motivational questions	Blackboard and data show	*Equisetium* Main characteristics and life cycle	Understand the lecture topic	2 Theoretical + 2 practical	١٢
motivational questions.	Blackboard and data show	Gymenosperm, Main characteristics	Understand the lecture topic	2 Theoretical + 2 practical	١٣
motivational questions.	Blackboard and data show	2nd Semester test	Understand the lecture topic	2 Theoretical + 2 practical	١٤

motivational questions with the grade	Blackboard and data show	General review	Understand the lecture topic	2 Theoretical + 2 practical	١٥

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)	▪ مولود ، بهرام خضر، الطحالب والاركيكونيات (١٩٩٠). وزارة التعليم العالي والبحث العلمي – الجمهورية العراقية. ▪ مولود، بهام خضر ، علم الاركيكونيات العملي(١٩٩٠) جامعة بغداد. ▪ بسام، احمد ناظم، علم النباتات اللازهرية (٢٠٠٤). ▪ النعمة، بشير علي . (٢٠١٩). مجموعة الحزازيات. مطبعة دار ابن الاثير، جامعة الموصل
Main references (sources)	. Goffinet, B. and Shaw, A. (2008). Bryophyta Biology. Cambridge University Press.
Recommended books and references (scientific journals, reports…)	Journal of Bryology
Electronic References, Websites	https://fac.ksu.edu.sa/sites/default/files/lthdyrt_lmjhry_ljz_lthr pdf

Course Description Form

1. Course Name:
Applied insects
2. Course Code:
BIO354
3. Semester / Year:
first semester/2023−2024
4. Description Preparation Date:
15/2/2024
5. Available Attendance Forms:
Classroom Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ridhab Ajeel Jasim Email: ridhab90@uoanbar.edu.iq Name: Oqba abdul alhalem abdul aljabar Email: oqbaalhadethe@uoanbar.edu.iq Name: Bashaer Yasein Mehdi Email: basaer.yaseen@uoanbar.iq
8. Course Objectives

Course Objectives	a. Introducing the student to the different types of insects, both medi and non-medical B. Preparing university teachers with educational skills to teach biology C. Developing students' scientific trends to develop their own abilities D. Providing students with how to innovate teaching aids for teaching biology
9. Teaching and Learning Strategies	
Strategy	**A- Cognitive objectives** 1. The student's knowledge of the history of insects and their evolution. 2. Providing the student with knowledge of the different types of insects related to human and animal life. 3. Providing the student with knowledge of medical and applied entomology

and the difference between them.

B - The skills objectives of the course.

1. Providing the student with knowledge related to the preparation of glass slides for different parts of insects such as wings and legs .
2. Providing the student with knowledge of the classification of insects
3. Providing the student with knowledge of how to prepare slides for cells
4. Providing the student with the skill of linking the theoretical and practical parts of the scientific subject
5. The student should use illustrative tools such as posters and videos related to scientific subject

A- Teaching and learning methods

Lectures, discussion, short reports, induction and measurement, and problem solving.

B- Evaluation methods

-Monthly test (essay and objective)
-Activity
-Short questions
-Reports
-Duties
-final exam

C- Thinking skills

Teaching and training students to link theoretical study with laboratory experiments consolidate information about the structure and function of cell.

D - General and transferable skills (other skills related to employability a personal development) .

D1- Verbal teaching behavior skills such as discussion, dialogue, explanation and interpretation.

D2- Non-verbal teaching behavior skills, such as visual contact between the teacher and the student, and use means of illustration such as educational videos and pictures

D3- Planning skill: such as the skill of determining the lesson topic, using appropri methods, and preparing questions

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	**Introduction to the general classification of arthropods and the location of the row of insects from them**	Understand the lecture topic	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data	**Entomology and general entomology**	Understand the lecture topic	2 Theoretical + 2 practical	٢

	show				
motivational questions	Blackboard and data show	**The category of insects, and how insects evolved**	Understand the lecture topic	2 Theoretical + 2 practical	٣
motivational questions	Blackboard and data show	**Insect body composition, body parts, body wall structure**	Understand the lecture topic	2 Theoretical + 2 practical	٤
FIRST MONTH EXAM					5
motivational questions	Blackboard and data show	**Head and its parts in insects**	Understand the lecture topic	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	**Installation of wings in insects**	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	**Installation of legs in insects and their modifications**	Understand the lecture topic	2Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	**Digestive system in insects**	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	**Circulatory system in insects**	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	**Excretory device in insects**	Understand the lecture topic	2 Theoretical + 2 practical	١١
SECOND MONTH EXAM					١٢

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)	6- Murad Baba Murad (1990) Invertebrate, Ministry of Higher Education and Scientific Research, University of Mosul
Recommended books and references (scientific journals, reports…)	Rumaih, Ahmed Ali Ali (2015) Fundamentals of Entomology. Dar Al-Kutub Al-Ilmiyya, Cairo . Bahsan, Mahdi Saeed (2014) Fundamentals of Entomology, University of Aden, Nasser College of Agricultural Sciences.
Electronic References, Websites	Harper, Douglas; McCormack, Dan (November 2001). "Online Etymological Dictionary". LogoBee.com. p. 1. Archived from the original on 11 January 2012. Retrieved 1 November 2011. **Chinery, Michael (1993). "Introduction". Insects of Britain & Northern Europe (3rd ed.). London: HarperCollins. pp. 11–1 ISBN 978-0-00-219918-6.**

Course Description Form

1. Course Name:
Medical insects
2. Course Code:
BIO354
3. Semester / Year:
Second semester/2023−2024
4. Description Preparation Date:
15/2/2024
5. Available Attendance Forms:
Classroom Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ridhab Ajeel Jasim Email: ridhab90@uoanbar.edu.iq Name: Oqba abdul alhalem abdul aljabar Email: oqbaalhadethe@uoanbar.edu.iq Name: Bashaer Yasein Mehdi Email: basaer.yaseen@uoanbar.iq
8. Course Objectives

Course Objectives	a. Introducing the student to the different types of insects, both medi and non-medical E. Preparing university teachers with educational skills to teach biology F. Developing students' scientific trends to develop their own abilities G. Providing students with how to innovate teaching aids for teaching biology
9. Teaching and Learning Strategies	
Strategy	**A- Cognitive objectives** 4. The student's knowledge of the history of insects and their evolution. 5. Providing the student with knowledge of the different types of insects related to human and animal life. 6. Providing the student with knowledge of medical and applied entomology and the difference between them.

B - The skills objectives of the course.

6. Providing the student with knowledge related to the preparation of glass slides for different parts of insects such as wings and legs .
7. Providing the student with knowledge of the classification of insects
8. Providing the student with knowledge of how to prepare slides for cells
9. Providing the student with the skill of linking the theoretical and practical parts of the scientific subject
10. The student should use illustrative tools such as posters and videos related to scientific subject

A- Teaching and learning methods

Lectures, discussion, short reports, induction and measurement, and problem solving.

B- Evaluation methods

-Monthly test (essay and objective)
-Activity
-Short questions
-Reports
-Duties
-final exam

C- Thinking skills

Teaching and training students to link theoretical study with laboratory experiments consolidate information about the structure and function of cell.

D - General and transferable skills (other skills related to employability a personal development) .

D1- Verbal teaching behavior skills such as discussion, dialogue, explanation and interpretation.

D2- Non-verbal teaching behavior skills, such as visual contact between the teacher and the student, and use means of illustration such as educational videos and pictures

D3- Planning skill: such as the skill of determining the lesson topic, using appropri methods, and preparing questions

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	**Introduction to insects of medical importance**	Understand the lecture topic	2 Theoretical + 2 practical	١
motivational questions	Blackboard and data show	**Ticks and scabies and their medical importance**	Understand the lecture topic	2 Theoretical + 2 practical	٢
motivational questions	Blackboard and data show	**Types of flies of medical importance**	Understand the lecture topic	2 Theoretical + 2 practical	٣

motivational questions	Blackboard and data show	**House flies and their medical importance**	Understand the lecture topic	2 Theoretical + 2 practical	٤
FIRST MONTH EXAM					5
motivational questions	Blackboard and data show	**The mosquito family has its medical importance**	Understand the lecture topic	2 Theoretical + 2 practical	٦
motivational questions	Blackboard and data show	**Diptera and its importance from a medical point of view.**	Understand the lecture topic	2 Theoretical + 2 practical	٧
motivational questions	Blackboard and data show	**The family of cockroaches and its importance from a medical point of view**	Understand the lecture topic	2Theoretical + 2 practical	٨
motivational questions	Blackboard and data show	**Pediculosis, lice**	Understand the lecture topic	2 Theoretical + 2 practical	٩
motivational questions	Blackboard and data show	**Insect pests**	Understand the lecture topic	2 Theoretical + 2 practical	١٠
motivational questions	Blackboard and data show	**Land and desert locusts and their importance from an economic point of view**	Understand the lecture topic	2 Theoretical + 2 practical	١١
SECOND MONTH EXAM					١٢

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)	7- Murad Baba Murad (1990) Invertebrate, Ministry of Higher Education and Scientific Research, University of Mosul
Recommended books and references (scientific journals, reports…)	Rumaih, Ahmed Ali Ali (2015) Fundamentals of Entomology. Dar Al-Kutub Al-Ilmiyya, Cairo . Bahsan, Mahdi Saeed (2014) Fundamentals of Entomology, University of Aden, Nasser College of Agricultural Sciences.
Electronic References, Websites	Harper, Douglas; McCormack, Dan (November 2001). "Online Etymological Dictionary". LogoBee.com. p. 1. Archived from the original on 11 January 2012. Retrieved 1 November 2011. **Chinery, Michael (1993). "Introduction". Insects of Britain & Northern Europe (3rd ed.). London: HarperCollins. pp. 11–1 ISBN 978-0-00-219918-6.**

Course Description Form

1. Course Name:
Biochemistry / of Biology Department
2. Course Code:
CHEM351
3. Semester / Year:
second semester– second level / 2023–2024
4. Description Preparation Date:
10/11/2023
5. Available Attendance Forms: My presence
6. Number of Credit Hours (Total) / Number of Units (Total)
15 weeks = 60 hours/semester /2 unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Esraa Abd AL-Karim Marouf Email: ph.alesraat@uoanbar.edu.iq
8. Course Objectives

Course Objectives	A. Introducing the student to parasitology, including all biology molecules, its types, the environments and its importance. B. Preparing university teachers with educational skills to teach biology reactions. C. Developing students' scientific attitudes to develop their own abilities D. Providing students with how to innovate teaching aids for teaching biology and science.

9. Teaching and Learning Strategies

Strategy	Providing the student with knowledge related to the study of biochemistry. Providing the student with knowledge of the types of biomolecules and their distribution. Providing the student with knowledge of the medical and industrial importance of different neighborhoods. Providing the student with knowledge of the composition, types and classification of living organisms. Providing the student with knowledge of how to characterize and diagnose biomolecules. Providing the student with the skill of linking the theoretical and practical part of the scientific material. The student should use illustrative means such as posters and videos related to the scientific material.

10. Course structure

the week	hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
the first	2 practical 2 theoratical	Parasitology & association between organism	General characteristics of different neighborhoods, their definition and general importance	laboratory	Short questions
the second	2 practical 2 theoratical	Mode of parasitic transmission to man	The definition of the microscope, its importance, and what are	laboratory	Short questions
the third	2 practical 2 theoratical	Introduction of protozoa & Class of Amoeba	The most important types of microscopes used in studies, their parts and uses	laboratory	Short questions
the fourth	2 practical 2 theoratical	Intestinal & Atrial amoeba	Description of the cell and the most important organelles it contains	laboratory	Short questions
Fifth	2 practical 2 theoratical	Free amoeba pathogen	describe the types of cells present in an organism's body,	laboratory	Short questions
Sixth	2 practical 2 theoratical	Intestinal flagellates & Atrial of	Know cell division and its types	laboratory	Short questions

Seventh	2 practical 2 theoratical	Hemoflagellates (*Leishmania*)	Definition of tissues and indication of their importance, location and	laboratory	Electronic test (various questions)
Eighth	2 practical 2 theoratical	Hemoflagellates (*Trypanosoma*)	Description of epithelial tissue and its types	laboratory	Daily tests
Ninth	2 practical 2 theoratical	Exam		laboratory	Short questions
The tenth	2 practical 2 theoratical	Class of cilia & Species	Semester test	laboratory	Short questions
eleventh	2 practical 2 theoratical	Class : sporozoa (Blood sporozoa)	describe biodiversity, methods of reproduction and the environment in	laboratory	Short questions
twelveth	2 practical 2 theoratical	Intestinal & other side of sporozoa	Description of the systems adopted in the classification	laboratory	Short questions
Thirteenth	2 practical 2 theoratical	Exam		laboratory	Short questions
Fourteenth	2 practical 2 theoratical	Introduction of helminthology &classification	Semester test		Various questions
Fifteenth	2 practical 2 theoratical	review	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)	
Main references (sources)	Harper , Stryer
Recommended books and references (scientific journals, reports…)	Khawla
Electronic References, Websites	• Google classroom • Google meet • Google form • PowerPoint

Course Description Form

1. Course Name:
Analytical Chemistry
2. Course Code:
CHEM111
3. Semester / Year:
First Semester / 2023–2024
4. Description Preparation Date:
12–11–2023
5. Available Attendance Forms:
My presence
6. Number of Credit Hours (Total) / Number of Units (Total)
15 weeks = 60 hours/semester /2 unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Esraa Abd AL-Karim Marouf Email: ph.alesraat@uoanbar.edu.iq
8. Course Objectives

Course Objectives	**A. Introducing the student to analytical chemistry, including all concentration laws, types dilutions of solutions, prepare solutions.** **B. Preparing university teachers with educational skills to teach analytical chemistry.** **C. Developing students' scientific attitudes to develop their own abilities** **D. Providing students with how to innovate teaching aids for teaching chemistry and science.**

9. Teaching and Learning Strategies	
Strategy	Providing the student with knowledge related to the study of dilutions laws. Providing the student with knowledge of the types of solutions and their distribution. Providing the student with knowledge of the prepare solutions, medical and industrial importance of different neighborhoods. Providing the student with knowledge the different types of concentration of solutions. Providing the student with knowledge of how to prepare different concentration of solutions. Providing the student with the skill of linking the theoretical and practical part of the preparation and calculation different concentration of solutions. The student should use illustrative means such as posters and videos related to the scientific material.

10. Course structure

the week	hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
the first	2 practical 2 theoretical	Principles of Volumetric Analysis	Volumetric Analysis	Laboratory + Lecture	Short questions
the second	2 practical 2 theoretical	Methods Concentrations Calculation	Concentration	Laboratory + Lecture	Short questions
the third	2 practical 2 theoratical	Neutralization Reaction	Types of Reactions	Laboratory + Lecture	Short questions
Fourth	2 practical 2 theoratical	Use of Neutralization Reactions in Volumetric Analysis	Volumetric Analysis	Laboratory + Lecture	Short questions
Fifth	2 practical 2 theoratical	Curves of Titrations	Types of Titrations	Laboratory + Lecture	Short questions
Sixth	2 practical 2 theoratical	Indicators	Types of Indicators	Laboratory + Lecture	Short questions
Seventh	2 practical 2 theoratical	Principles of Gravimetric	Gravimetric Analysis	Laboratory + Lecture	Electronic test (various

		Analysis			questions)
Eighth	2 practical 2 theoratical	Gravimetric Factor	Gravimetric Factor	Laboratory + Lecture	Daily tests
Ninth	practical 2 theoratical			Laboratory + Lecture	Short questions
The tenth	2 practical 2 theoratical		Semester test	Laboratory + Lecture	Short questions
eleventh	2 practical 2 theoratical	Principles of Spectrophotometer Analysis	Spectrophotometer Analysis	Laboratory + Lecture	Short questions
twelveth	2 practical 2 theoratical	Beers Lambert Law	Spectrophotometer Analysis	Laboratory + Lecture	Short questions
Thirteenth	2 practical 2 theoratical	Concentration Measurement	Relation Absorption with Concentration	Laboratory + Lecture	Short questions
fourteenth	2 practical 2 theoratical		Semester test	Laboratory + Lecture	Various questions
Fifteenth	4 practical	review	review		the 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)	
Main references (sources)	Fundamentals of Analytical Chemistry, I Ismail Al-Hiti
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	Google classroom • Google meet • Google form • PowerPoint

Course Description Form

1. Course Name:	
tatbiqat tarbawiat aw madrasiat – 4	
2. Course Code:	
3. Semester / Year:	
fasli (alfasl al'awal – walfasl althaani) 2023– 2024	
4. Description Preparation Date:	
٢٠٢٣/١٠/١	
5. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
6. Number of Credit Hours (Total) / Number of Units (Total)	
60 hr./ 3Unit	
7. Course administrator's name (mention all, if more than one name)	
aliasm : 'a.m. du. 'ahlam salman ealii aljinabii albarid al'iilikturuni: ahlam.ali@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	almadat ala dirasat almawadie alrayiysiati: 1–'an yakun altaalib qadraan ealaa taelim wataealum muhtawayat

	almawadi waltatbiqat almadrasiati. 2-an yataearaf altaalib ealaa mafhum altatbiqat almadrasia 3- an tantahi altaalibat altatbiq wa'anwae altatbiq 4- an yafham altaalib mafhum almar'at wafayataha bialtatbiqi. 5- an la yatamakan altaalib min maerifat altatbiq waljamaeii .
9. Teaching and Learning Strategies	
Strategy	*almurajaeat al'iistiratijiat : alsharh walsharh almuhadirat walwasf aleilmiu lihali almushkilat *al'ahdaf alsiyahia 1- aliastiqra' 2- altahlil 3- 4-almuhadara 5- altamkin *almaharat alkhasat bialmuqarari. 1 - tanmiat almaharat fi maerifat altatbiq aleamalii watawzifih fi aljanib aleamalii altadrisii 2 - tanmiat maharat kayfiat altaeamul mae almushkilat alati tahtajuha almar'a 3 - tanmiat maharat tawzif aljanib alnazarii fi khidmat aljanib aleamalii *- Emotional and value goals 1- Thinking that explores the truth about the power of teaching through (question and answer interrogation method) 2- Managing psychological problems resulting from lack of courage by knowing the appropriate solutions to them 3- Spreading the spirit of interaction in the individual application in front of students through group viewing and interaction between students through academic competition 4- Urging students to employ what they have learned through individual application in public and professional life *- General and qualifying transferable skills (other skills related to employability and personal development). 1-The skill of identifying the reasons that limit the student from applying and refraining from it and addressing them

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	muqadimat ean altatbiq walmushahada	an albidayat al'asasiat lieadam alyaqin walmushahada .	2 Theoretical	١
motivational questions	Blackboard and data show	alsuluk walsuluk altadrisiu wanmatuh	aniaat aldirasat al'asasiat lilsuluk walsuluk altadrisii wamamatih .	2 Theoretical	٢
motivational questions	Blackboard and data show	almushahadatu: mafhumuha wasisuha wamutabaeat almushahadat wafq astimarat almushahadat wahdaf almushahada	an yataealam altaalib maenaa almushahada	2 Theoretical	٣
motivational questions	Blackboard and data show	walsulukiaat alati yumkin mushahadatuha watatbiquha liltawdih ealaa altaalib almutabiq alailtizam biha wamarhaban biha	an yataealam altaalib sulukiaatih alati yumkin mushahadatuha watatbiquha	2 Theoretical	٤
motivational questions	Blackboard and data show	altakhtit alyawmiu walshahriu walsanawiu lildars walmuqarar ada' aliamtihan (alshahr alawil)	an yaerif khutat altakhtit alyawmii walshahrii walsanawii lildars	2 Theoretical	٥
motivational	Blackboard	thuma tatbiq min qibal	an yataealam	2My application	2My applicat

questions	and data show	majmueat min altulaab .	altaalib hataa kayfiat eamal almurajaeat alshaamilat hataa walaw kan altaalib mundh fatrat aidirakih lima tama tanfidhuh khilal aimtihan alshahr alawl		ion
motivational questions	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq altulaab	2My application	2My application
motivational questions	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq 'amam altulaab	2My application	2My application
motivational questions	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq 'amam altulaab	2My application	2My application
motivational questions	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq 'amam altulaab	2My application	2My application
motivational questions	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq 'amam altulaab	2My application	2My application
motivational questions	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq 'amam	2My application	2My application

			altulaab		
motivational questions.	Blackboard and data show	altatbiq min qibal majmueat min altalaba .	an altaalib altaalib dhu maenaa kabir altatbiq 'amam	2My application	2My application
motivational questions.	Blackboard and data show	naqtarih hawl mustalah altatbiq bialmadaris alkhasat alyawm alawil .	an yaekis lana altaalib kula ma shahadah khilal fatrat altatbiq bialmadaris wayjaba walhulul	1 theoretical ١ Practical	١٤
motivational questions with the grade	Blackboard and data show	munaqashat altaqarir baed eawdat altalabat min altatbiq fi almadaris	an yaekis lana altaalib kula ma shahadah khilal fatrat altatbiq bialmadaris wayjaba walhulul	١ theoretical ١ Practical	١٥

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

alkutub almuhadadat almatlu (almanhajiat an wajadti)	1- eabd alrahman eisaa alhusayn , altatbiqat altadrisiat fi aeidadat almadrasa . 2- raghad zakii almuhsin , bina' barnamaj taelimiin fi madat almushahadat waltatbiq . 3- shakir muhamad amin , ahdaf altatbiqat altadrisiat wawaqat tahqiquha .

Course Description Form

١. Course Name:	
Earth science	
٢. Course Code:	
٣. Semester / Year:	
first semester/2023-2024	
٤. Description Preparation Date:	
٢٠٢٣\٩\١٧	
٥. Available Attendance Forms:	
Daily, at the time specified in the schedule, and at full time	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
30 hr./ 2Unit	
٧. Course administrator's name (mention all, if more than one name)	
Name: Dr.Khalid sabbar Mohammed Email: ed.khalid.sabar@uoanbar.edu.iq	
٨. Course Objectives	
Course Objectives	This course aims to convey a general idea about: 1-The student must be able to teach and learn the English language subject

	-٢That the student becomes familiar with the four English language skills -٣That the student realizes the importance of language in contemporary education -٤That the student understands the concepts related to learning the English language -٥That the student understands how to use scientific communication sites in English
٩. Teaching and Learning Strategies	
Strateg	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing Mendel's laws and using them in the practical aspect B2 - Developing the skill of how to deal with English language skills B3 - Developing the student's writing, listening and reading skills C- Emotional and value goals C1- Thinking that explores the truth through (question and answer(C2- Managing language-related problems by knowing the appropriate solutions to them C3- Spreading the spirit of interaction and attraction among students through academic competition C4- Urging students to employ what they have learned in public life D - Transferable general and qualifying skills (other skills related to employability and personal development.(D1-The skill of identifying the reasons for developing the student's language D2- The skill of solving exercises related to English grammar and translation development D3- The skill of knowing how to deal with research and books in the English language Providing the student with knowledge related to the study of chordate Providing the student with knowledge of the types of chordate and their heir structure and shapes

Course structure .١٠

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	whiteboard	An overview	Getting to know you	2 Theoretical	1
motivational questions	whiteboard	An overview	The way we live	2 Theoretical	2
motivational questions	whiteboard	An overview	It all went wrong	2 Theoretical	3
motivational questions	whiteboard	An overview	Let's go shopping	2 Theoretical	4
motivational questions	whiteboard	An overview	What do yo want to do?	2 Theoretical	5
motivational questions	whiteboard	An overview	Tell me what's it like?	2 Theoretical	6
motivational questions	whiteboard	An overview	Present perfect and past simple.	2 Theoretical	7
motivational questions	whiteboard	An overview	Famous couples	2 Theoretical	8
motivational questions	whiteboard	month exam	Present perfect and past simple A-Time and conditional clauses	2 Theoretical	9
motivational questions	whiteboard	Review	Present perfect and past simple A-Time and conditional clauses	2 Theoretical	10
motivational questions	whiteboard	An overview	Verb patterns 2	2 Theoretical	11
motivational questions	whiteboard	An overview	Phrasal verbs	2 Theoretical	12

motivational questions.	whiteboard	An overview	Social expressions (2).	2 Theoretical	13
motivational questions.	whiteboard	An overview	Reported statements	2 Theoretical	14
motivational questions with the grade	Whiteboard	An overview	Past perfect	2 Theoretical	15

١١. 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

١٢. Learning and Teaching Resources

Required textbooks (curricular books any)	١- Headway plus student book
Main references (sources)	٢-
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description

1. Course Name:
Contemporary English Grammar
2. Course Code:
3- Semester / Year:
Semester 1/ 2023-2024
4- Description Preparation Date:
17/9/2023
5- Available Attendance Forms:
Lectures
6- Number of Credit Hours (Total) / Number of Units (Total)
30 hours/30 credits
7- Course administrator's name (mention all, if more than one name)
Name: Doctor teacher . Salam Ssbbar Malik Email: : ssmalak@uoanbar.edu.iq

8- Course Objectives

Course Objectives	**- To understand how to realize the linguistic elements of the sentence in different functions.** **- To know the basic patterns and elements of the sentence.** **- To know how the sentence is formed and structured.**

9- Teaching and Learning Strategies

Strategy	Learning and teaching strategies and methods dependent in implementation of the program in general.

10- Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	2	Receptivity and understanding	Measurement, know it, its types, and its functions	The lecture	Oral and written tests
The second	2	Receive and discuss	The test, its concept, classification	The lecture	Oral and written tests
the third	2	Receive and discuss	Calendar, its concept, types, an importance	The lecture	Exams
the fourth	2	Receive and discuss	Educational goals, their functions, an classification	The lecture	Real-time tests
Fifth	2	Receive and discuss	Determine the content (table of specifications)	The lecture	the exams
The sixth	2	Receive and discuss	Writing questions, arranging them, and providing instructions	The lecture	daily exams
The seventh	2	Receive and discuss	Exploratory experiment	The lecture	Oral and written tests
The eighth	2	Receive and discuss	Types of achievement tests	The lecture	Oral and written

			oral		exams
The ninth	2	Receive and discuss	Written tests, their advantages and disadvantages	The lecture	Exams
The tenth	2	Receive and discuss	Essay tests, their advantages and disadvantages	The lecture	exams
eleventh	2	Receive and discuss	Objective tests, their types, advantages and disadvantages	The lecture	exams
Twelfth	2	Receive and discuss	Performance tests, their types, advantages and disadvantages	The lecture	Exams
Thirteenth	2	Receive and discuss	Extracting statistical characteristics of test items	The lecture	Oral and written tests
fourteenth	2	Receive and discuss	Estimating the effectiveness of alternatives	The lecture	Oral and written tests
Fifteenth	2	Receive and discuss	Non-test methods	The lecture	Exams

11- Course Evaluation

Distributing the score out if 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)	Measurement and evaluation in the educational proc written by Dr. Ihsan Aliwi Al-Dulaimi and Dr. Ac Mahmoud Al-Mahdawi 2005
Main references (source)	Measurement and evaluation in the educational proc written by Dr. Ihsan Aliwi Al-Dulaimi and Dr. Ac Mahmoud Al-Mahdawi 2005
Recommended books and references (scientific journals, reports…)	Lectures on measurement a evaluation
Electronic references, websites.	

Course Description Form

1. Course Name:
Biostatistics
2. Course Code:
BIO245
3. Semester / Year:
Second semester/2023-2024
4. Description Preparation Date:
1/2/2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)

60 r./ 2Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mustafa Ismaeel Naif Email: eps.mustafa.ismaeel@uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	This course aims to convey a general idea about: The student acquires the necessary skills for the basic concepts statistics and their application in the life sciences.
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1- Extrapolation 2- Analysis 3- Conclusion 4-The lecture 5-Empowerment B - The skills objectives of the course. B1 - Developing the skill in knowing the basic concepts of statistics. B2 - Developing the skill of how to obtain data from samples. B3 - Developing the skill of employing measures of central tendency, dispersion, correlation, and regression scientifically C- Emotional and value goals C1- The student should listen carefully to the explanation C2- The student must participate in subject activities C3- To respect the knowledgeable value that he has C4- To organize data to solve problems in the subject D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Skill in calculating measures of central tendency and dispersion D2- The skill of calculating correlation and regression between variables D3- The skill of knowing the types of data D4- The skill of self-development by giving him information that will benefit him in the practical aspect D5- It enables the student to use what he has learned to develop

	himself

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
an in-person lecture, and motivational questions.	Blackboard and data show	Statistics and life	The student learns the basic principles of statistics	2	١
motivational questions	Blackboard and data show	Statistics and life	The student learns the methods and types of collecting samples	2	٢
motivational questions	Blackboard and data show	Data types	The student learns the types of data	2	٣
motivational questions	Blackboard and data show	Data types	The student learns how to deal with the SPSS program	2	٤
motivational questions	Blackboard and data show	Data tab	The student knows how to tabulate data and display it graphically	2	٥
motivational questions	Blackboard and data show	Measures of central tendency	The student will learn the concept of measures of central tendency	2	٦
motivational questions	Blackboard and data show	Measures of central tendency	The student learns how to calculate measures of central tendency for classified data	2	٧
Conduct a written exam	Blackboard and data show	Review the subject and conduct a monthly exam	The student learns how to do a comprehensive review of the subject, and the student notices the extent of his understanding of what has been studied by	2	٨

			taking the first month's exam.		
motivational questions	Blackboard and data show	dispersion measures	The student will learn the concept of dispersion measures	2	٩
motivational questions	Blackboard and data show	dispersion measures	The student will learn the concept of calculating dispersion measures for classified data	2	١٠
motivational questions	Blackboard and data show	correlation	The student will learn the concept of correlation and methods of calculating it	2	١١
motivational questions	Blackboard and data show	correlation	The student will learn how to distinguish between the strength of the connection and its direction	2	١٢
motivational questions.	Blackboard and data show	simple regression	The student will learn the concept of simple regression	2	١٣
Conduct a written exam.	Blackboard and data show	Review the subject and conduct a monthly exam	The student learns how to do a comprehensive review of the subject, and the student notices the extent of his understanding of what has been studied by taking the second month's exam.	2	١٤
motivational questions.	Blackboard and data show	probability	The student will learn the concept of probability	2	١٥

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)	٢٥- خاشع الراوي، مدخل الى علم الاحصاء ، دار نشر جامعة الموصل، العراق. ٢٦- الهوبي، اياد محمد، مبادئ الاحصاء والاحصاء الحيوي، الكلية الجامعية للعلوم والتكنولوجيا ، خان يونس، فلسطين، ٢٠١٧
Main references (sources)	1- Daniel, W. and Cross, C. L., (2020). Biostatistics: A Foundation for Analysis in the Health Sciences, 11th Edition, EMEA Edition, Wiley.
Recommended books and references (scientific journals, reports…)	اوي،عبد الحليم ، صلاح جلال ، صادق، محمد حسين ،الاحصاء الحيوي وتصميم التجارب، ٢٠٠٨، مصر
Electronic References, Websites	https://lecture-notes.tiu.edu.iq/biostatistics-3/

Course Description Form

1. Course Name:
Scientific research method
2. Course Code:
BIO129
3. Semester / Year:
First- semester/2023-2024
4. Description Preparation Date:
28/9/2023
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
32 hr./ 2Unit
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Ali Abd Sharad

Email: aliabd197359@uoanbar.edu.iq	
8. 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 methods of obtaining scientific sources • The student must have the characteristics and qualities of a good researcher • That the student acquires the skill of scientific research techniques • The student will acquire the skill of research using computers and tl information network • The student must have high ability and skill in the field of scient research and the method of writing scientific research
9. Teaching and Learning Strategies	
Strategy	Learning outcomes, teaching, learning and assessment methods . A- Cognitive objectives 1. Providing the student with a cognitive skill about the contents of scientific research methods and the most important methods adopted in its application 2. The student learns how to prepare research and deal with different types of scientific research problems. B - The skills objectives of the course. 1. Knowing the mechanisms of applying scientific research in pure sciences (Biology sciences). 2. Expanding the student's concepts in the applications of scientific research and overcoming difficulties. The student should use illustrative means such as posters and videos related to the scientific subject. C- Emotional and value goals 1. . Thinking that explores the truth through (question and answer) 2. . Managing societal problems by knowing appropriate solutions to them through academic concepts 3. Create a spirit of interaction and attraction among students through academic competition 4. . Urging students to employ what they have learned in public life D - Transferable general and qualifying skills (other skills related to

	employability and personal development). 1. The skill of self-development by giving him information that will benefit him in the academic future 2. It enables the student to use what he has learned to develop himself

10. Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
motivational questions	Blackboard and data show	Scientific research - an introduction to studying the scientific research method	The ability to diagnose the most important obstacles to ancient scientific research. - Identifying the concept of research as an applied scientific subject.	2 Theoretical	1
motivational questions	Blackboard and data show	Introduction to scientific research methods	- Knowing the concept of scientific thinking and knowledge.	2 Theoretical	2
motivational questions	Blackboard and data show	The difference between science, scientific thinking and scientific research	- Understanding the concept of scientific Research Methodology.	2 Theoretical	3
motivational questions	Blackboard and data show	Types of scientific research		2 Theoretical	4

motivational questions	Blackboard and data show	Scientific research methods and methods	Learn about the types of Research Methodology	2 Theoretical	5
motivational questions	Blackboard and data show	Scientific research plan		2 Theoretical	٦
motivational questions	Blackboard and data show	Scientific research methodology	Identifying the most important objectives of Research Methodology	2 Theoretical	٧
motivational questions	Blackboard and data show	Scientific research plans	- Understanding the concept of scientific Research Methodology	2 Theoretical	٨
motivational questions	Blackboard and data show	Steps for preparing scientific research	Learn about scientific research methods and methods	2 Theoretical	٩
motivational questions	Blackboard and data show	structure of a research plans	Learn about the most important steps of preparing research	2 Theoretical	١٠
motivational questions	Blackboard and data show		Learn about the concept of a research plan.	2 Theoretical	١١
motivational questions	Blackboard and data show	literature review	Identify literature review studies and subject literature related to the research topic	2 Theoretical	١٢
motivational questions	Blackboard and data show	Data collection tools Conducting a seminar on topics	- To learn about samples and data collection tools, - Focus on the	2 Theoretical	١٣

		related to the research, according to the number of groups in the stage	main topics in each topic of the course through scientific discussion		
motivational questions	Blackboard and data show	writing Scientific Research	Know how to develop an integrated research methodology.	2 Theoretical	١٤
motivational questions	Blackboard and data show	Know how to develop writing a method for integrated research. Identify the main and subsidiary factors in the research writing method	Identify the main and subsidiary factors in the research methodology	2 Theoretical	١٥

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)	Nil
Main references (sources)	scientific research methods Dr.. Gamal Ahmed Abbas M. Maha Khaled Shehab/2018 Scientific research methods / Ribhi Mustafa Alyan 2013
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Computers
2. Course Code:
first stage
3. Semester / Year:
Courses - semester
4. Description Preparation Date:
2 – 4 – 2024
5. Available Attendance Forms:
Daily, at the time specified in the schedule, and at full time
6. Number of Credit Hours (Total) / Number of Units (Total)
؛hours
7. Course administrator's name (mention all, if more than one name)
Name: Rafid Sayhood Abdulaziz Email: rafid.alhashimy@uoanbar.edu.iq
8. Course Objectives

Course Objectives	• Teaching the student how to use and manage the computer and its programs and applications • help the student complete projects, print, create presentations • have full knowledge of using the Internet due to the need for it in many fields, including education, marketing, and electronic

	correspondence

9. Teaching and Learning Strategies

Strategy	The student's knowledge of the parts of a computer, its accessories, and ways to use it. The student's ability to apply what he has learned on the computer in laboratory.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	4 Theoretical	An introductory introduction to the computer	Computer basics	lecture	Monthly exams
٢	4 Theoretical	Identify computer generations	Computer basics	lecture	Monthly exams
٣	4 Theoretical	Areas of computer use	Computer basics	lecture	Monthly exams
٤	4 Theoretical	Physical components of computer	Computer components	lecture	Monthly exams
٥	4 Theoretical	Output devices	Computer components	lecture	Monthly exams
٦	4 Theoretical	Internal parts of the system unit	Computer components	lecture	Monthly exams
٧	4 Theoretical	Storage capacities	Computer components	lecture	Monthly exams
٨	4 Theoretical	Software components	Computer components	lecture	Monthly exams
٩	4 Theoretical	Numerical systems	Computer components	lecture	Monthly exams
١٠	4 Theoretical	BIOS	Computer components	lecture	Monthly exams
١١	4 Theoretical	Personal computer	Computer components	lecture	Monthly exams
١٢	4 Theoretical	Computer platform	Computer components	lecture	Monthly exams
١٣	4 Theoretical	Software security & licenses	Computer components	lecture	Monthly exams
١٤	4 Theoretical	Operating systems	Computer components	lecture	Monthly exams
١٥	4 Theoretical	Features of Windows 7 operat system	Computer components	lecture	Monthly 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)	Computer basics and office applications - Ministry of Comprehensive Scientific

	Education / Advanced Research Department.
Main references (sources)	- Introduction to the Computer / Ahmed Mohamed Ibrahim. - Computer Basics / Tariq Al-Nasuri.
Recommended books and references (scientific journals, reports…)	computer fundamentals, certificate in library and information science
Electronic References, Websites	ar.wikihow.com/

Course Description Form

1. Course Name:
Gram of resurrection
2. Course Code:
3. Semester / Year:
Second semester – 2023-2024
4. Description Preparation Date:
12/11/2023
5. Available Attendance Forms:
Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours/30 units
7. Course administrator's name (mention all, if more than one name)
Name: Dr. ARLAN KHUDHAIR ABBAS

Email: arkan.khudhair@uoanbar.edu.iqdu.iq

8. Course Objectives

Course Objectives	1. The curriculum aims to document Baath crimes in accordance with the Supreme Criminal Court Law of 2005 2. Exposing psychological and social crimes, their effects, and the symptoms of their violations of the Baathist regime. 3. It shows the environmental crimes of the Baath regime in Iraq 4. Mass grave crimes

9. Teaching and Learning Strategies

Strategy	Learning and teaching strategies and methods dependent in implementation of the program in general.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	2	Receptivity and understanding	The concept of crimes and Baath crimes	The lecture	Oral and written tests
The secon	2	Receive and discuss	Definition of crime and its types	The lecture	Oral and written tests
the third	2	Receive and discuss	Baath crimes according to the Criminal Court Lav of 2005	The lecture	Exams
the fourth	2	Receive and discuss	Types of international crimes	The lecture	Real-time tests
Fifth	2	Receive and discuss	Study of the decisions o the Supreme Criminal Court	The lecture	the exams
VI	2	Receive and discuss	Psychological crimes	The lecture	daily exams
Seventh	2	Receive and discuss	Social crimes	The lecture	Oral and written tests
VIII	2	Receive and	The relationship betwee	The lecture	Oral and written

		discuss	resurrection and psychological and socia crime		exams
The ninth	2	Receive and discuss	The Baath position on religion	The lecture	Exams
The tenth	2	Receive and discuss	Baath crimes against religion, humanity, and freedom of religion	The lecture	the exams
eleventh	2	Receive and discuss	The relationship betwee politics, religion and freedom of opinion	The lecture	the exams
twelveth	2	Receive and discuss	Environmental crimes	The lecture	Exams
Thirteenth	2	Receive and discuss	War crimes	The lecture	Oral and written tests
fourteenth	2	Receive and discuss	Destroying cities, draining marshes and mass graves	The lecture	Oral and written tests
Fifteenth	2	Receive and discuss	The latest graves of the genocide committed by the Baathist regime ir Iraq	The lecture	Exams

11. Course Evaluation	
Distributing the score out if 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 crimes of the Baath regime in Iraq, Curriculum of the Ministry of Higher Education and Scientific Research, 2013 AD.
Main references (source)	Encyclopedia of the Iraqi Environment, Laws

	Military Occupation, Al-Ihsan Hindi, 1972 AD Archives of the Foundation for Political Prison and Martyrs in Iraq
Recommended books and references (scientific journals, reports...)	
Electronic references, websites.	

Course Description

12. Course Name:
Educational and psychological guidance
13. Course Code:
14. Semester / Year:
Semester ٢ / 2022-2023
15. Description Preparation Date:
17/9/2022
16. Available Attendance Forms:
Lectures
17. Number of Credit Hours (Total) / Number of Units (Total)
30 hours/30 credits
18. Course administrator's name (mention all, if more than one name)
Name: Asst. Doctor teacher . Salam Ssbbar Malik Email: : ssmalak@uoanbar.edu.iq
19. Course Objectives

Course Objectives	• **For students to understand what educational guidance and guidance is.** • **• For the student to become familiar with the types of educational and psychological guidance.** • **• That the student understands the relationship betw counseling and guidance..**
20. Teaching and Learning Strategies	
Strategy	Learning and teaching strategies and methods dependent in implementation of the program in general.

21. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	2	Receptivity and understanding	Concept of philosophy	The lecture	Oral and written tests
The second	2	Receive and discuss	Guidance and guidance, emergence and development	The lecture	Oral and written tests
the third	2	Receive and discuss	Stages of guidance development	The lecture	Exams
the fourth	2	Receive and discuss	The meaning of educational guidance	The lecture	Exams
Fifth	2	Receive and discuss	The meaning of educational guidance	The lecture	Exams
VI	2	Receive and discuss	The relationship between guidance and counseling	The lecture	Exams
Seventh	2	Receive and discuss	The importance of educational guidance	The lecture	Exams
VIII	2	Receive and discuss	Objectives of educational guidance	The lecture	Exams
The ninth	2	Receive and discuss	The foundations o which the counseling proces is based	The lecture	Exams
The tenth	2	Receive and discuss	Areas of educational guidance	The lecture	the exams
eleventh	2	Receive and discuss	Educational guidance methods	The lecture	the exams
twelveth	2	Receive and discuss	Types of educational guidance	The lecture	Exams
Thirteenth	2	Receive and discuss	Guidance and various sciences	The lecture	Oral and written tests
fourteenth	2	Receive and discuss	Reality therapy in counseling programs	The lecture	Oral and written tests
Fifteenth	2	Receive and discuss	Counseling theorie	The lecture	Exams

22. Course Evaluation	
Distributing the score out if 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports,...etc.	
23. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	The book "Educational and Psycholog Guidance and its Role in Achieving the Goals the Educational Process," by Assem Mahm Nada, 1989.
Main references (source)	.
Recommended books and references (scientific journals, reports…)	
Electronic references, websites.	

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First	BIO121	Basics of zoology	Basic	√	√	√		√				√	√		
	BIO122	Cell science 1	Basic	√	√	√		√				√	√		
	CHE111	Analytical chemistry	my choice		√	√		√	√				√		
	UOA137	Arabic	Basic				√				√			√	
	AGES101	Earth science	my choice		√				√						
	UOA135	human rights	Basic				√			√				√	
	EPS101	Educational psychology	Basic				√			√					
	BIO128	Basics of botany	Basic	√	√	√		√				√	√		
	BIO129	Cell science 2	Basic	√	√	√		√				√	√		
	CHE121	organic chemistry	my choice		√	√		√	√				√		
	UOA140	English	Basic		√						√			√	
	UOA141	Calculators	Basic		√		√				√				√
	UOA136	Freedoms	Basic				√			√				√	
	EPS102	Foundations of education	Basic				√			√				√	
Second	BIO235	No vertebrates 1	Basic	√	√	√		√				√	√		
	BIO236	Histology	Basic	√	√	√		√				√	√		
	BIO237	Comparative plant anatomy	Basic	√	√	√		√				√	√		
	BIO238	Algae science	Basic	√	√	√		√				√	√		
	BIO239	Scientific research method	my choice				√		√				√		
	EPS202	Developmental psychology	Basic				√			√		√			
	UOA140	English	Basic		√						√				√
	BIO241	No vertebrates 2	Basic	√	√	√		√				√	√		
	BIO242	Embryology	Basic	√	√	√		√				√	√		
	BIO243	Biochemistry	my choice	√	√	√		√				√	√		
	BIO244	Archaiconia	Basic	√	√	√		√				√	√		
	BIO245	Life statistics	my choice	√	√	√		√	√				√		
	EPS201	educational administration	Basic				√			√		√			√

Third	BIO347	General insects	Basic	√	√	√		√	√			√	√		
	BIO348	Chordates and comparative anatomy	Basic	√	√	√		√	√			√	√		
	BIO349	Genetics-1	Basic	√	√	√		√	√			√	√		
	BIO350	Microbiology	Basic	√	√	√		√	√			√	√		
	BIO351	Plant morphology	Basic	√	√	√		√	√			√	√		
	BIO352	Microscopic preparations	Basic	√	√	√		√	√			√	√		
	EPS311	Curricula and teaching methods	Basic				√			√	√			√	√
	BIO354	Applied insects	Basic	√	√	√		√	√			√	√		
	BIO355	Fungi	Basic	√	√	√		√	√			√	√		
	BIO356	Plant classification	Basic	√	√	√		√	√			√	√		
	BIO357	Life technology	Basic	√	√	√		√	√			√	√		
	BIO358	Animal Physiology	Basic	√	√	√		√	√			√	√		
	BIO359	Genetics-2	Basic	√	√	√		√	√			√	√		
	EPS312	Counseling and mental health	Basic				√			√				√	
	UOA140	English	Basic		√						√				√
Fourth	BIO461	Parasites-1		√	√	√		√	√			√	√		
	BIO462	Applied bacteriology	Basic	√	√	√		√	√			√	√		
	BIO463	Phosphorus is a plant	Basic	√	√	√		√	√			√	√		
	BIO464	Ecology	Basic	√	√	√		√	√			√	√		
	BIO465	Molecular biology	Basic	√	√	√		√	√			√	√		
	EPS411	Measurement and evaluation	Basic				√								
	EPS412	Teaching applications	Basic				√			√	√			√	√
	UOA140	English	Basic		√						√				√
	BIO469	Parasites-2	Basic	√	√	√		√	√			√	√		
	BIO470	environmental pollution	Basic	√	√	√		√	√			√	√		
	BIO471	Immunology	Basic	√	√	√		√	√			√	√		
	BIO472	Public Health	Basic	√	√	√		√	√			√	√		
	BIO474	Cellular metabolism	Basic	√	√	√		√	√			√	√		
	BIO473	Optional	Basic	√	√	√		√	√			√	√		
	EPS413	School applications	my choice				√			√	√			√	√
	EPS414	Graduation Project	Basic		√	√		√					√	√	

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