Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation

Academic Program Specification Form For The Academic

University: Anbar
College : Education for Pure Science
Department: Biology
Date Of Form Completion : 10/6/2023

Prof. Dr. Abdul Rahman Salman. Juma	Assist. Prof.Dr. Harith Kamil Buniya	Assist. Prof. Luay Hatem Ali
Dean's Name	Dean's Assistant For Scientific Affairs	Head of Department
Date: / /	Date: 10/6/2023	Date: 10/06/2023
Signature	Signature	Signature

Assist. Prof. Dr. Feras Shaker Mahmood

Quality Assurance And University Performance Manager

Date: 10/6/2023
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAMME SPECIFICATION

This Programme Specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the programme.

1. Teaching Institution	University of Anbar
2. University Department/Centre	College of education for pure science-Department of Biology
3. Programme Title	Education Biology Sciences
4. Title of Final Award	Bachelor of Education Biology Sciences
5. Modes of Attendance offered	Quarterly
6. Accreditation	Nothing
7. Other external influences	School application - practical graduation research projects
8. Date of production/revision of this specification	10/6/2023
9. Aims of the Programme	

1. Achieving the specified standards for the quality of material, human, technical and financial resources.
2. Providing an efficient administrative staff that knows its duties and powers according to the work structures and regulations, in which the requirements of the job description are fulfilled.
3. Providing a specialized teaching staff who is fluent in using modern techniques and methods in education with good job satisfaction.
4. Preparing academic programs in accordance with international academic standards and providing their knowledge, training and technical requirements.
5. Preparing students with scientific, practical and educational knowledge that meets the needs of the labor market.
6. Paying attention to scientific research in terms of laboratory, research and researcher in order to achieve a distinguished research reputation locally and globally.
7. Research and professional openness to community institutions to meet their needs and aspirations.
8. Evaluate all individuals and processes to ensure quality performance and continuous improvement.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1. Enable the student to acquire theoretical knowledge of biology.

A2. Empowering the student how to teach and ways of communicating scientific information to students.

A3. The student's knowledge of the methods of measurement and evaluation and methods of modern teaching methods in biology.

A4. The student is acquainted with the educational material by providing it electronically in the virtual classroom. In addition to enabling the student to know the learning theories related to the ages of students for the secondary school stage.

B. Subject-specific skills

B1. Gaining knowledge and enriching the student with the methods of laboratory work.

B2. Orienting the student to the scientific method in solving all scientific problems.

B3. Knowing the objectives and origins of the art of teaching biology.

B4. Enabling students to acquire the skills of using virtual classrooms

Teaching and Learning Methods

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

Assessment methods

1. The treatment method using final scores.
2. Random and surprise tests.
3. Teaching tasks in the virtual classroom.

C. Thinking Skills

C1. Adopting the method of dialogue between the student and the professor.
C2. Interest in research projects and preparing organized reports
C3. Adopt the method of discussion. (Performance tests and seminars).
C4. Adopting e-learning to provide an interesting and flexible learning environment.

Teaching and Learning Methods

1. Method of application in research laboratories
2. Adopting the method of constructive dialogue and discussion
3. Adopt the trial-and-error method.
4. The adoption of multimedia in the virtual classes (image, text, audio, video)

Assessment methods

1. Preparation of the seminar (graduation research)
2. Adoption of the grading method as a basis in the evaluation process.
3. Adoption of the test method.
4. Adopting the method of discussions and dialogues between the students and the professor.
5. Create a test task in the virtual classes.

D. General and Transferable Skills (other skills relevant to employability and personal development)

D1- That the student benefit from his learning and embody this in his personal and professional development.
D2- That the student is able to employ the knowledge he receives during the study stage.
D3- That the student benefit from theoretical knowledge in employing the teaching profession and mastering it in a concept-based manner.
Fundamentals of teaching biology.
D4 - Skills of modern technologies in communication, documentation and communication.

Teaching and Learning Methods

1. Field visits in laboratories.
2. Scientific application in laboratories.
3. Take advantage of graduation research.
4. Presentation and presentation of educational content in virtual classes using multimedia (video, recorded lecture).

Assessment Methods

1. Articles and periodical research
2. The interview
3. Final exams
4. Determining study tasks and duties periodically and regularly in the virtual classroom

11. Programme Structure				
Level/ Year	Course or Module Code	Course or ModuleTitle	Weekly hours	
			Lec.	Lab.
First	BIO121	Principles of zoology	2	2
	BIO122	Cytology 1	1	2
	CHE111	Analatical chemistry	2	2
	UOA137	Arabic language	2	-
	AGES101	Geology	2	-
	UOA135	Human rights	1	-
	EPS101	Educational Psychology	2	-
	BIO128	Principles of plant	2	2
	BIO129	Cytology 2	1	2
	CHE121	Organic chemistry	2	2
	UOA140	English language	2	-
	UOA141	Computer	2	2
	UOA136	democracy	2	-
	EPS102	Bases of education	2	
Second	BIO235	Invertebrates 1	2	2
	BIO236	Histology	2	2
	BIO237	Comparative plant anatomy	2	2
	BIO238	Algae	2	2
	BIO239	Research methodology	2	-
	EPS202	Growth psychology	2	-
	UOA140	English language	2	-
	BIO241	Invertebrates 2	2	2
	BIO242	Embryology	2	2
	BIO243	Biochemistry	2	2
	BIO244	Archegoniates	2	2
	BIO245	Biostatistics	2	-
	EPS201	Educational administration	2	-

Third	BIO347	Entomology	2	2
	BIO348	Comparative anatomy of Chordates	2	2
	BIO349	Genetics 1	2	2
	BIO350	Microbiology	2	2
	BIO351	Plant morphology	2	2
	BIO352	Microscopic preparation	1	2
	EPS311	Educational curriculum	2	-
	BIO354	Applied Entomology	2	2
	BIO355	Fungi	2	2
	BIO356	Taxonomy	2	2
	BIO357	Biotechnology	2	2
	BIO358	Animal physiology	2	2
	BIO359	Genetics 2	2	2
	EPS312	Counseling and mental health	2	-
	UOA140	English language	2	-
Fourth	BIO461	Parasitology 1	2	2
	BIO462	Applied bacteriology	2	2
	BIO463	Plant physiology	2	2
	BIO464	Ecology	2	2
	BIO465	Molecular biology	2	2
	EPS411	Measurement and evaluation	2	-
	EPS412	Classroom viewing	2	-
	UOA140	English language	2	-
	BIO469	Parasitology 2	2	2
	BIO470	Environmental pollution	2	2
	BIO471	Immunology	2	2
	BIO472	Poblic health	2	-
	BIO474	Cellular metabolism	2	2
	BIO473	Elective	2	-
	EPS413	practical School application	-	4
	EPS414	Research project	-	6

13. Personal Development Planning

1. Using modern scientific sources.
2. Using rapid communication networks to transfer information such as the Internet.
3. Visits and practical practices in service laboratories.
4. Acquisition of scientific and modern experiences and skills in the field of modern technical communication

14. Admission criteria

1. Admission according to the general and central average system.
2. Admission to departments is according to the student's desire and is modified.
3. It is a condition for a graduate of the preparatory school and the scientific stream exclusively.
4. The accepted student's personal and mental integrity and freedom from physical impairments

15. Key sources of information about the programme

1. Curriculum books approved by the Sectorial Committee of the Faculties of Education for Pure Sciences.
2. Helping books.
3. Books and archaeological resources / sources in the English language.
4. Additional sources from the Internet.
5. The training courses held by the university on e-learning platforms.

Curriculum Skills Map

				Programme Learning Outcomes															
Year/ Level	Course Code	CourseTitle	Core / Option	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First	BIO121	Principles of zoology	Core	√	√	√		√				√	√				√		
	BIO122	Cytology 1	Core	√	√	√		√				√	√				√		
	CHE111	Analatical chemistry	Option		√	√		√	√				√				√		
	UOA137	Arabic language	Core				√				√			√		√			
	AGES101	Geology	Option		√				√								√		
	UOA135	Human rights	Core				√			√				√				√	
	EPS101	Educational Psychology	Core				√			√								√	
	BIO128	Principles of plant	Core	√	√	√		√				√	√				√		
	BIO129	Cytology 2	Core	√	√	√		√				√	√				√		
	CHE121	Organic chemistry	Option		√	√		√	√				√				√		
	UOA140	English language	Core		√					√				√		√			
	UOA141	Computer	Core		√		√			√					√				√
	UOA136	democracy	Core				√		√					√				√	
	EPS102	Bases of education	Core				√		√					√				√	

Curriculum Skills Map

Year/ Level	Course Code	CourseTitle	Core / Option	Programme Learning Outcomes															
				Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Second	BIO235	Invertebrates 1	Core	√	√	√		√				√	√				√		
	BIO236	Histology	Core	√	√	√		√				√	√				√		
	BIO237	Comparative plant anatomy	Core	√	√	√		√				√	√				√		
	BIO238	Algae	Core	√	√	√		√				√	√				√		
	BIO239	Research methodology	Option				√		√				√			√	√		
	EPS202	Growth psychology	Core				√			√		√				√		√	
	UOA140	English language	Core		√						√				√	√	√		
	BIO241	Invertebrates 2	Core	√	√	√		√				√	√				√		
	BIO242	Embryology	Core	√	√	√		√				√	√				√		
	BIO243	Biochemistry	Option	√	√	√		√				√	√				√		
	BIO244	Archegoniates	Core	√	√	√		√				√	√				√		
	BIO245	Biostatistics	Option	√	√	√		√	√				√				√		
	EPS201	Educational administration	Core				√			√		√				√	√	√	√

Curriculum Skills Map

Year/ Level	Course Code	CourseTitle	Core / Option	Programme Learning Outcomes															
				Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Third	BIO347	Entomology	Core	√	√	√		√	√			√	√				√		
	BIO348	Comparative anatomy of Chordates	Core	√	√	√		√	√			√	√				√		
	BIO349	Genetics 1	Core	√	√	√		√	√			√	√				√		
	BIO350	Microbiology	Core	√	√	√		√	√			√	√				√		
	BIO351	Plant morphology	Core	√	√	√		√	√			√	√				√		
	BIO352	Microscopic preparation	Core	√	√	√		√	√			√	√				√		
	EPS311	Educational curriculum	Core				√			√	√			√	√	√	√	√	√
	BIO354	Applied Entomology	Core	√	√	√		√	√			√	√				√		
	BIO355	Fungi	Core	√	√	√		√	√			√	√				√		
	BIO356	Taxonomy	Core	√	√	√		√	√			√	√				√		
	BIO357	Biotechnology	Core	√	√	√		√	√			√	√				√		
	BIO358	Animal physiology	Core	√	√	√		√	√			√	√				√		
	BIO359	Genetics 2	Core	√	√	√		√	√			√	√				√		
	EPS312	Counseling and mental health	Core				√			√				√		√			
	UOA140	English language	Core		√					√					√	√			√

Curriculum Skills Map

Year/ Level	Course Code	CourseTitle	Core / Option	Programme Learning Outcomes															
				Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Fourth	BIO461	Parasitology 1	Core	√	√	√		√	√			√	√				√		
	BIO462	Applied bacteriology	Core	√	√	√		√	√			√	√				√		
	BIO463	Plant physiology	Core	√	√	√		√	√			√	√				√		
	BIO464	Ecology	Core	√	√	√		√	√			√	√				√		
	BIO465	Molecular biology	Core	√	√	√		√	√			√	√				√		
	EPS411	Measurement and evaluation	Core				√									√	√	√	√
	EPS412	Classroom viewing	Core				√			√	√			√	√	√	√	√	√
	UOA140	English language	Core		√						√				√	√			√
	BIO469	Parasitology 2	Core	√	√	√		√	√			√	√				√		
	BIO470	Environmental pollution	Core	√	√	√		√	√			√	√				√		
	BIO471	Immunology	Core	√	√	√		√	√			√	√				√		
	BIO472	Poblic health	Core	√	√	√		√	√			√	√				√		
	BIO474	Cellular metabolism	Core	√	√	√		√	√			√	√				√		
	BIO473	Elective	Option	√	√	√		√	√			√	√				√		
	EPS413	practical School application	Core				√			√	√			√	√	√	√	√	√
	EPS414	Research project	Core		√	√		√					√	√			√		

Prof. Dr. Dhafer Fakheri Al-Rawi

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**Microbiology**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/8**

- ✓ Teaching the student, the basic of microbiology and the developments of this science.
- ✓ How to isolate bacteria from different environments.
- ✓ The applied importance of microbiology.
- ✓ How to deal with and control microorganism.

- **The study in both its theoretical and practical is conducted in person using modern technology**

- **Teaching and learning methods**

✓ Using the modern technology in education through display devices (Data-Show) in the theoretical aspect. ✓ while the practical aspect is in microbiology Laboratories through practical experiments.
• **Evaluation methods**
✓ Daily and monthly and final exams. ✓ With the student performing the practical aspect in the laboratory along with homework assignments.
• **Thinking skills**
• **The student must actively participate in thermotical and practical lectures.**
• **Teaching and learning methods.**
• **Theory, practice and discussions.**
• **General and transferable skills (other skills related to employability and personal development).**

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
dialogue	In presence	Introduction in microbiology	In presence	2	1
dialogue	In presence	The spread of microorganism and their importance	In presence	2	2
dialogue	In presence	Characteristics of bacteria. their shapes. And the basis of their diagnosis	In presence	2	3
Daily exam	In presence	Bacterial cell wall composition and internal structures	In presence	2	4
Dialogue	In presence	Bacterial cell wall composition and internal structures	In presence	2	5
Homework on bacterial structure	In presence	Nutrition of bacteria and composition of culture media	In presence	2	6
First monthly exam				2	7
Dialogue	In presence	Bacterial growth and growth phases	Theoretical	2	8
dialogue	In presence	Bacterial cultivation and cultivation methods	In presence	2	9

Daily exam	In presence	Microorganism physiology and obtain energy	=	2	10
Dialogue	In presence	Metabolism and metabolic pathways	=	2	11
Dialogue	In presence	Control of microorganism	=	2	12
Second monthly exam				2	13
Dialogue	In presence	Antibiotics	Thermotical	2	14
Final exam				3	15

Admission

Prerequisites	What the student studied in previous years
The lower number of students	45
The largest number of students	50

Prof. Dr. Thaer Abdel-Qader Saleh

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…es
2. University department/center	**Department of biology**
3. Course name/code	**Basics of parasites**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/8**

- ✓ Course objectives: Shedding light on parasites species and teaching the student many skills to identify these organisms, how to preserve them, classify them, diagnose them, and their benefits and harms.
- ✓ How to deal with and control microorganism.

- Learning outcomes and methods of teaching, learning and evaluation.

• Teaching and learning methods
• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills
• Many skills in identifying, identifying, mummifying, preserving and diagnosing parasites organisms
• Teaching and learning methods

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
questions and answers	theoretical	first	An overview of parasites	2	first
questions and answers	theoretical	second	Division and classification of parasites	2	second
questions and answers	theoretical	third	Parasites protozoa organisms and methods of identifying them	2	third
questions and answers	theoretical	fourth	Flagellates, Balantidium, characteristics	2	fourth
questions and answers	theoretical	Fifth	Sarcodina and Sporozoa Important features	2	Fifth
questions and answers	theoretical	sixth	Classification of flats worms	2	sixth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Preservatives
Social services (including, for example, guest lectures, vocational training, and field studies)	Training in diagnosing samples and methods of preserving them

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Prof. Dr. Thaer Abdel-Qader Saleh

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…es
2. University department/center	**Department of biology**
3. Course name/code	**Basics of Invertebrates**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/8**

✓ Course objectives: Shedding light on invertebrate species and teaching the student many skills to identify these organisms, how to preserve them, classify them, diagnose them, and their benefits and harms.

- Learning outcomes and methods of teaching, learning and evaluation

- Teaching and learning methods

• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills
• Many skills in identifying, identifying, mummifying, preserving and diagnosing living organisms
• Teaching and learning methods
• Theory, practice and discussions
• General and transferable skills (other skills related to employability and personal development).

Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or subject**	**Required learning outcomes**	**Hours**	**Week**
Questions And Answers	Theoretical	First	An overview of invertebrates	2	First
Questions And Answers	Theoretical	Second	Division and classification of invertebrates	2	Second
Questions And Answers	Theoretical	Third	protozoa organisms and methods of identifying them	2	Third
Questions And Answers	Theoretical	Fourth	Flagellates, ciliates, characteristics	2	Fourth
Questions And Answers	Theoretical	Fifth	Sarcodina and spores Important features	2	Fifth
Questions And Answers	Theoretical	Sixth	Classification of animal organisms	2	Sixth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Preservatives
Social services (including, for example, guest lectures, vocational training, and field studies)	Training in diagnosing samples and methods of preserving them

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Prof. Dr. Thaer Abdel-Qader Saleh

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…s
2. University department/center	**Department of biology**
3. Course name/code	**Basics of Insects**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/23**

✓ Course objectives: Shedding light on invertebrate species and teaching the student many skills to identify these organisms, how to preserve them, classify them, diagnose them, and their benefits and harms.

- Learning outcomes and methods of teaching, learning and evaluation-1

- Teaching and learning methods

• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills
• Many skills in identifying, identifying, mummifying, preserving and diagnosing living organisms
• Teaching and learning methods
• Theory, practice and discussions
• General and transferable skills (other skills related to employability and personal development).

Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or subject**	**Required learning outcomes**	**Hours**	**Week**
Questions And Answers	Theoretical	First	An overview of Insects	2	First
Questions And Answers	Theoretical	Second	Division and classification of Insects	2	Second
Questions And Answers	Theoretical	Third	Insects organisms and methods of identifying them	2	Third
Questions And Answers	Theoretical	Fourth	Insects characteristics	2	Fourth
Questions And Answers	Theoretical	Fifth	Insect mouth parts and tentacles	2	Fifth
Questions And Answers	Theoretical	Sixth	Legs and various body parts such as the head, chest, and legs	2	Sixth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Preservatives
Social services (including, for example, guest lectures, vocational training, and field studies)	Training in diagnosing samples and methods of preserving them

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Prof. Dr. Samir Mushrif Khalaf

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**Basics of genetics (1)**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/12**

✓ Course objectives: Shedding light on modern Mendelian and molecular genetic techniques and teaching students many of the skills of these techniques, such as DNA extraction and PCR Technology.

- Learning outcomes and methods of teaching, learning and evaluation-1

- Teaching and learning methods

• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills
• Many mathematical skills because genetics is based on mathematical concepts
• Teaching and learning methods
• Theory, practice and discussions
• General and transferable skills (other skills related to employability and personal development).

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
Questions And Answers	Theoretical	First	Concept of genetics and introduction to genes	2	First
Questions And Answers	Theoretical	Second	The gene and genetic superiority	2	Second
Questions And Answers	Theoretical	Third	Multiple alleles	2	Third
Questions And Answers	Theoretical	Fourth	Introduction to molecular genetics	2	Fourth
Questions And Answers	Theoretical	Fifth	Nucleic acids packaging	2	Fifth
Questions And Answers	Theoretical	Sixth	Central dogma	2	Sixth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Chemicals and extraction kit
Social services (including, for example, guest lectures, vocational training, and field studies)	Vocational training

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Prof. Dr. Samir Mushrif Khalaf

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…es
2. University department/center	**Department of biology**
3. Course name/code	**Basics of genetics (2)**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**second semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/13**

✓ Course objectives: Shedding light on modern molecular genetic techniques and teaching students many of the skills of these techniques, such as DNA extraction and polymerase chain reaction technology.

- Learning outcomes and methods of teaching, learning and evaluation-1

- Teaching and learning methods

• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills
• Many mathematical skills because genetics is based on mathematical concepts
• Teaching and learning methods
• Theory, practice and discussions
• General and transferable skills (other skills related to employability and personal development).

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
questions and answers	Theoretical	First	Restricted enzymes	2	First
questions and answers	Theoretical	Second	Genetic mutations	2	Second
questions and answers	Theoretical	Third	Genetic problems	2	Third
questions and answers	Theoretical	Fourth	DNA repair mechanisms 1	2	Fourth
questions and answers	Theoretical	Fifth	DNA repair mechanisms 2	2	Fifth
questions and answers	Theoretical	Sixth	PCR	2	Sixth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Chemicals and extraction kit
Social services (including, for example, guest lectures, vocational training, and field studies)	Vocational training

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Assistant Prof. Dr. Haider Kadhim Yakuob

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…es
2. University department/center	**Department of biology**
3. Course name/code	**Applied Bacteriology**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/2/16**

✓ Course objectives: Shedding light on modern bacteriological techniques and teaching students many of the skills of these techniques, such as isolation and identification of bacteria in food, water, and air.

- Learning outcomes and methods of teaching, learning and evaluation-1

- Teaching and learning methods

• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills
• Many laboratory skills of applied bacteriology
• Teaching and learning methods
• Theory, practice and discussions
• General and transferable skills (other skills related to employability and personal development).

UNIVERSITY OF ANBAR

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
questions and answers	Theoretical	First	Applications Of Bacteria	2	First
questions and answers	Theoretical	Second	Water Bacteriology	2	Second
questions and answers	Theoretical	Third	Sewage Bacteriology	2	Third
questions and answers	Theoretical	Fourth	Soil Bacteriology	2	Fourth
questions and answers	Theoretical	Fifth	Nitrogen Fixing Bacteria	2	Fifth
questions and answers	Theoretical	Sixth	Air Bacteriology	2	Sixth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Chemicals and cultural media
Social services (including, for example, guest lectures, vocational training, and field studies)	Vocational training

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Assistant Prof. Dr. Loay Hatem Ali

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	University
2. University department/center	**College of Education for Pure Sciences / Department of biology**
3. Course name/code	**Cell metabolism/BIO474**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**second semester 2022-2023**
7. Number of study hours (total)	**Hours / semester 45**
8. Date this description was prepare	**2022/4/10**

- ✓ Introducing the student to metabolic reactions and their types within the cell.
- ✓ Preparing university teachers with educational skills to teach biology.
- ✓ Developing students' scientific attitudes to develop their own abilities.
- ✓ Providing students with how to innovate teaching aids for teaching biology.

9. Learning outcomes and methods of teaching, learning and evaluation

• **A.** Cognitive objectives
1- The student's ability to discern, cognitive perception and modern practical research methods.
2- Provide the student with knowledge and understanding of the main principles of cellular metabolism.
3-Introducing the student to modern techniques in the study of metabolism .
• **B.** Course Skills Objectives
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
Teaching and learning methods

Lecture, discussion, short reports, induction and measurement, and problem solving
Evaluation methods
Monthly test (essay and objective) Activity Short questions Reports Duties ***Final exam***
C- Emotional and value-based goals
Teaching and learning methods
Discussion, lecture, and questioning
Evaluation methods
✓ Achievement tests ✓ Test methods (interview and observation) ✓ Feedback from the student

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

1) Skills of verbal teaching behaviors such as discussion, dialogue, explanation and interpretation.

2) Non-verbal teaching behavior skills such as visual communication between teacher and student, use illustration methods such as educational videos and pictures

3) Planning skill: such as the skill of determining the topic of the lesson, using appropriate means, preparing questions

4) Implementation skills: such as stimulating students' motivation, controlling and managing the classroom

5) Evaluation skills: such as preparing monthly, essay, objective tests

10. Course structure

The Week	Hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
The First	1 theoretical 2 practical	Know the importance of cellular metabolism	Introduction to cellular metabolism	Lecture + laboratory	Short questions
The Second	1 theoretical 2 practical	Knowledge of material rotation paths	Types of metabolism and energy	Lecture + laboratory	Short questions
The Third	1 theoretical 2 practical	Understanding blood movement	Blood and lymph stream and transmission mechanism	Lecture + laboratory	Short questions
The Fourth	1 theoretical 2 practical	* Knowing the mechanism of metabolism	Carbohydrate metabolism	Lecture + laboratory	Homework
Fifth	1 theoretical 2 practical	* Knowledge of physiological metabolic imbalances	Glycolysis cycle, Krebs cycle	Lecture + laboratory	Short questions
Sixth	1 theoretical 2 practical	* Understanding the metabolic mechanism in lower organisms	Metabolism in low organisms	Lecture + laboratory	Short questions
Seventh	1 theoretical 2 practical	Semester test	Semester test	Lecture + laboratory	Electronic test (various questions)
Eighth	1 theoretical 2 practical	Student knowledge: *Causes of diabetes	Diabetes and its types	Lecture + laboratory	writing a report
Ninth	1 theoretical 2 practical	The student understood glycogen storage	Glycogen storage imbalances	Lecture + laboratory	Short questions
The Tenth	1 theoretical 2 practical	The student knows how to metabolize proteins	Metabolism of proteins	Lecture + laboratory	Short questions

Eleventh	1 theoretical 2 practical	The student's knowledge of the metabolism of nitrous wastes	Nitrogenous wastes and their metabolism	Lecture + laboratory	Short questions
Twelfth	1 theoretical 2 practical	Knowledge of digestion and absorption of fats	Fat metabolism	Lecture + laboratory	Short questions
Thirteenth	1 theoretical 2 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 2 practical	Semester test	Semester test		Various questions
Fifteenth	1 theoretical 2 practical	*The student's understanding of the material studied during the semester *The student's knowledge of the connection between all of the above	review		Draw an illustrative diagram of the material studied during the semester

11. Infrastructure

1) Required prescribed books	---
2) Main references (sources)	Medical Biochemistry: Human Metabolism in Health and Disease 1st Edition, 2019 Clinical Studies in Medical Biochemistry 3rd Edition
3) Recommended books and references, (scientific journals, reports)	---
4) Electronic references, Internet sites...	---

Assistant Prof. Dr. Loay Hatem Ali

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	bar
2. University department/center	**College of Education for Pure Sciences / Department of biology**
3. Course name/code	**Histology / BIO 236**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**second semester / 2022-2023**
7. Number of study hours (total)	**Hours / semester45**
8. Date this description was prepare	**6/12/2022**

- ✓ Introducing the student to the structure and types of tissue and preparing temporary and permanent tissue slides for animal samples
- ✓ Preparing university teachers with educational skills to teach biology
- ✓ Developing students' scientific attitudes to develop their own abilities
- ✓ Providing students with how to innovate teaching aids for teaching biology

9. Learning outcomes and methods of teaching, learning and evaluation

• **A.** Cognitive objectives
1- The student's ability to discern, cognitive perception and modern practical research methods.
2- Provide the student with knowledge and understanding of the main principles of cellular metabolism.
3- Introducing the student to modern techniques in the study of metabolism .
• **B.** Course Skills Objectives
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

Teaching and learning methods
Lecture, discussion, short reports, induction and measurement, and problem solving
Evaluation methods
Monthly test (essay and objective) Activity Short questions Reports Duties ***Final exam***
C- Emotional and value-based goals
Teaching and learning methods
Discussion, lecture, and questioning

Evaluation methods
✓ Achievement tests ✓ Test methods (interview and observation) ✓ Feedback from the student
• **D- General and transferable skills (other skills related to employability and personal development)**
1) Skills of verbal teaching behaviors such as discussion, dialogue, explanation and interpretation. **2)** Non-verbal teaching behavior skills such as visual communication between teacher and student, use illustration methods such as educational videos and pictures **3)** Planning skill: such as the skill of determining the topic of the lesson, using appropriate means, preparing questions **4)** Implementation skills: such as stimulating students' motivation, controlling and managing the classroom **5)** Evaluation skills: such as preparing monthly, essay, objective tests

10. Course structure

The Week	Hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
The First	1 theoretical 2 practical	Know the types of animal tissues	Introduction to Animal Histology	Lecture + laboratory	Short questions
The Second	1 theoretical 2 practical	Simple and false epithelial knowledge	Covering and lining epithelial tissue	Lecture + laboratory	A comparison between the types of tissues
The Third	1 theoretical 2 practical	Knowledge of the structure of glands	Applied epithelial tissue	Lecture + laboratory	Short questions
The Fourth	1 theoretical 2 practical	*Knowledge of the structure of bone and cartilage	Skeletal connective tissue	Lecture + laboratory	Homework
Fifth	1 theoretical 2 practical	* Know the difference between white and red blood cells and platelets	Blood: Types of blood cells	Lecture + laboratory	Short questions
Sixth	1 theoretical 2 practical	*Understanding the stages of blood formation	Stages of blood formation	Lecture + laboratory	Short questions
Seventh	1 theoretical 2 practical	---	Semester test 1	---	Electronic test (various questions)
Eighth	1 theoretical 2 practical	Student knowledge: * Muscle fiber structure	Muscle tissue	Lecture + laboratory	Writing a report on preparing a tissue sample
Ninth	1 theoretical 2 practical	The student's knowledge of how nervous tissue works	Nervous tissue	Lecture + laboratory	Short questions
The Tenth	1 theoretical 2 practical	Student Arafa Central nervous system sheaths	Neuroglia	Lecture + laboratory	Short questions

Eleventh	1 theoretical 2 practical	Understand the mechanism of action of veins and arteries	Circulatory device	Lecture + laboratory	Short questions
Twelfth	1 theoretical 2 practical	The student's knowledge of vessels and lymphatic capillaries	Lymphatic vascular system	Lecture + laboratory	Short questions
Thirteenth	1 theoretical 2 practical	The student's knowledge of the work of the spleen and almonds	Lymphatic organs	Lecture + laboratory	Short questions
Fourteenth	1 theoretical 2 practical	*Understanding the structure of skin and epidermis	The integumentary device	Lecture + laboratory	Short questions
Fifteenth	1 theoretical 2 practical	---	Semester test 2	---	Various questions

11. Infrastructure

1) Required prescribed books	Histology c 1 and c 2 / d. Kawakeb Abdul Qadir Al-Mukhtar and d. Abdul Hakim Al-Rawi
2) Main references (sources)	Basic- histology C. L, Junqueira & Cameira. J,. (2005). -Text book of veterinary histology (Dellmann and Brown, third edition, 1987).
3) Recommended books and references, (scientific journals, reports)	---
4) Electronic references, Internet sites...	---

Assistant Prof. Dr. Haitham Lateef Abdulhadi

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

1. Educational institution	**University Of Anbar**
2. University department/center	**College of Education for Pure Sciences / Department of Biology**
3. Course name/code	**Animal Physiology / BIO145**
4. The programs he participates in	**BSc. Degree/third stage**
5. Available forms of attendance	**In person and online**
6. Semester/year	**second semester / 2022-2023**
7. Number of study hours (total)	**34 hours**
8. Date this description was prepare	**2/7/ 2022**

1) The student learns the meaning of animal physiology, its basics, and what scientific research has accomplished in this field.
2) Putting the student at the present time face to face with the scientific problems facing scientific research within this science.
3) Emphasis on the communication in each topic of this subject between scientific principles and functional aspects.
4) Revealing the interrelationships between this science and other sciences. Providing students with how to innovate teaching aids for teaching biology

9. Learning outcomes and methods of teaching, learning and evaluation

- **First: Cognitive objectives**

Cognitive objectives

1) That the student knows the general principles of this science.

2) The student should know the systems and organs that make up the human body, their functions, and the relationships between them.

3) To understand the mechanism of action of these organs and how to control and influence them.

4) Shedding light on the marvels of God's creation within the field of physiology and the infinite and great precision of this creation.

- **Second: The skills objectives of the course.**

1) Deepening the student's understanding of the aspects of balance between living things in brief and between animals in some detail, with emphasis on what is related to animal physiology.

2) Deepening the student's understanding of the interrelationships between the basics of physiology, chemistry, physics, and some other sciences.

3) That the student learns what the normal conditions of the body's organs are and can diagnose any abnormalities in these conditions.

4) To be able to interpret the results that he can obtain while practicing his laboratory work.

5) To be able to relate and analyze problems that may arise during his work.

• **Third: Teaching and learning methods**
Lecture, discussion, short reports, induction and measurement, and problem solving
• **Fourth: Evaluation methods**
✓ Monthly test (essay and objective) ✓ Activity ✓ Short questions ✓ Reports ✓ Duties ✓ ***Final exam***
• **Fifth: Thinking skills: (emotional and value-based goals)**
✓ Stimulating teamwork among students ✓ Developing the student's skills and thinking ✓ Stimulating brainstorming among students
• **Sixth: Teaching and learning methods**
Discussion, lecture, and questioning.

• **Seventh: Evaluation methods**
Achievement tests
• **Eighth: General and qualifying transferable skills (other skills related to employability and personal development).**
1) Verbal teaching behavior skills such as discussion, dialogue, explanation, and interpretation. 2) Non-verbal teaching behavior skills, such as visual contact between the teacher and the student, and use of illustrations such as educational videos and pictures 3) Planning skill: such as the skill of determining the lesson topic, using appropriate methods, and preparing questions.

11. Course structure.

Week	Hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
First)	1 theoretical 2 practical	Physiology and its general principles	Physiology and its general principles	Lecture + laboratory	Short questions
Second)	1 theoretical 2 practical	Physiology of the circulatory system and lymphatic system	Physiology of the circulatory system and lymphatic system	Lecture + laboratory	Short questions
Third)	1 theoretical 2 practical	Respiratory system physiology	Respiratory system physiology	Lecture + laboratory	Short questions
Fourth)	1 theoretical 2 practical	The first theoretical test	The first theoretical test	Lecture + laboratory	Homework
Fifth)	1 theoretical 2 practical	Digestive system physiology	Digestive system physiology	Lecture + laboratory	E-test (various questions)
Sixth)	1 theoretical 2 practical	Physiology of the nervous system	Physiology of the nervous system	Lecture + laboratory	Short questions
Seventh)	1 theoretical 2 practical	The second theoretical test	The second theoretical test	Lecture + laboratory	E-test (various questions)
Eighth)	1 theoretical 2 practical	Muscular system physiology	Muscular system physiology	Lecture + laboratory	Write a report + Homework
Ninth)	1 theoretical 2 practical	The transfer of energy	The transfer of energy	Lecture + laboratory	Short questions
Tenth)	1 theoretical 2 practical	Physiological effect of heat and energy metabolism	Physiological effect of heat and energy metabolism	Lecture + laboratory	Short questions
Eleventh)	1 theoretical 2 practical	The third theoretical test	The third theoretical test	Lecture + laboratory	Short questions
Twelfth)	1 theoretical 2 practical	Review the study material	Draw an illustrative diagram of the material studied during the semester		

12. Infrastructure

Required readings: • **Course books** • **Other**	❖ **Required prescribed books** Youssef Muhammad Arab and others, Animal Physiology, Dar Al-Kutub for Printing and Publishing, University of Mosul, 1989. ❖ **Help books:** Other Arab and foreign sources from several authors and several publishing houses. ❖ **Electronic references, websites...** - https://www.webmd.com/a-to-z-guides/what-is-physiology

13. Admissions

Special requirements	• Google classroom • Google meet • Google form • PowerPoint
Social services (including, for example, guest lectures, vocational training, and field studies)	• Attending scientific seminars

Assistant Prof. Dr. Haitham Lateef Abdulhadi

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

1. Educational institution	**University Of Anbar**
2. University department/center	**College of Education for Pure Sciences / Department of Biology**
3. Course name/code	**Microscopic preparations / BIO141**
4. The programs he participates in	**BSc. Degree/third stage**
5. Available forms of attendance	**In person and online**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**34 hours**
8. Date this description was prepare	**1/7/ 2022**

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. Learning outcomes and methods of teaching, learning and evaluation

- **First: Cognitive objectives**

1) The student's knowledge of the history and development of microscopic preparations
2) Providing the student with knowledge of the types of microscopes
3) Providing the student with knowledge of how to prepare a permanent and temporary microscope slide.

- **Second: The skills objectives of the course.**

1) Providing the student with knowledge related to preparing cellular samples for 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 temporary and permanent slides.
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.

- **Third: Teaching and learning methods**

Lecture, discussion, short reports, induction and measurement, and problem solving

- **Fourth: Evaluation methods**

- ✓ Monthly test (essay and objective)
- ✓ Activity
- ✓ Short questions
- ✓ Reports
- ✓ Duties
- ✓ ***Final exam***

- **Fifth: Thinking skills: (emotional and value-based goals)**

- ✓ Stimulating teamwork among students

✓ Developing the student's skills and thinking ✓ Stimulating brainstorming among students
• **Sixth: Teaching and learning methods**
Discussion, lecture, and questioning.
• **Seventh: Evaluation methods**
• Achievement tests • Test methods (interview and observation) • Feedback from the student
• **Eighth: General and qualifying transferable skills (other skills related to employability and personal development).**
1) Verbal teaching behavior skills such as discussion, dialogue, explanation, and interpretation. 2) Non-verbal teaching behavior skills, such as visual contact between the teacher and the student, and use of illustrations such as educational videos and pictures 3) Planning skill: such as the skill of determining the lesson topic, using appropriate methods, and preparing questions.

11. Course structure.

Week	Hours	Required learning outcomes	Name of the unit/course or subject	Teaching method	Evaluation method
Thirteenth)	1 theoretical 2 practical	Types of microscopes	Identify the types of microscopes and their use.	Lecture + laboratory	Short questions
Fourteenth)	1 theoretical 2 practical	The relationship of microscopic preparations with other sciences	Sciences that are associated with the science of microscopic preparations.	Lecture + laboratory	Short questions
Fifteenth)	1 theoretical 2 practical	General methods in microscopic preparations	General method in microscopic technique 1) Non-sectional preparations (method). 2) Sectional preparations (method).	Lecture + laboratory	Short questions
Sixteenth)	1 theoretical 2 practical	Preparations (method) not sectional	Non sectioning Method	Lecture + laboratory	Homework
Seventeenth)	1 theoretical 2 practical	Examples of segmental preparations	Smearing Method Squashing Method	Lecture + laboratory	E-test (various questions)
Eighteenth)	1 theoretical 2 practical	Determine the student's understanding of the scientific material.	First month exam	Lecture + laboratory	Short questions
Nineteenth)	1 theoretical 2 practical	Sectional preparations (method).	Sectioning Method Method of sectioning	Lecture + laboratory	E-test (various questions)
Twentieth)	1 theoretical 2 practical	Steps used to make histological sections mounted on glass slides.	Obtain the sample	Lecture + laboratory	Write a report + Homework
Twenty-first)	1 theoretical 2 practical	Fixation	Types and classification of Fixation	Lecture + laboratory	Short questions
Twenty-second	1 theoretical 2 practical	Explain the rest of the steps.	Steps to prepare a permanent chip.	Lecture + laboratory	Short questions
Twenty-third)	1 theoretical 2 practical	Determine the student's understanding of the scientific material.	First month exam	Lecture + laboratory	Short questions
Twenty-fourth	1 theoretical 2 practical	*The student's understanding of the material studied during the semester	review	Draw an illustrative diagram of the material studied during the semester	

12. Infrastructure

Required readings: • **Course books** • **Other**	❖ **Required prescribed books** Youssef Muhammad Arab and others, Animal Physiology, Dar Al-Kutub for Printing and Publishing, University of Mosul, 1989. ❖ **Help books:** Other Arab and foreign sources from several authors and several publishing houses. ❖ **Electronic references, websites...** - https://www.webmd.com/a-to-z-guides/what-is-physiology

13. Admissions

Special requirements	• Google classroom • Google meet • Google form • PowerPoint
Social services (including, for example, guest lectures, vocational training, and field studies)	• Attending scientific seminars

Assistant Prof. Dr. Farqad Hawass Musa

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

1. Ed	Anbar University, College of Education for Pure Sciences
2. University department/center	**Department of biology**
3. Course name/code	**Mycology Bio 355**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**second semester / 2022-2023**
7. Number of study hours (total)	**60 hour**
8. Date this description was prepare	**2022/1/29**

1) The student's knowledge of the history of the emergence of fungi.
2) Providing the student with the knowledge necessary to know the kingdom of fungi.
3) Giving the student the ability to know the types of fungi and the diseases resulting from them.

9. Learning outcomes and methods of teaching, learning and evaluation
Teaching and learning methods
Using a group of educational films and illustrations in addition to traditional methods Article and objectivity.
Evaluation methods
Daily and monthly exams
Thinking skills
1. Providing the student with some of the necessary methods in 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
Teaching and learning methods
Theory, practice and discussions
General and transferable skills (other skills related to employability and personal development).Various questions, homework, asking questions during the lecture.

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
questions and answers	Theoretical + practical	first	A general introduction to fungi, general features of fungi, and the economic importance of fungi	4	first
questions and answers	Theoretical + practical	second	The external appearance of the fungus	4	second
questions and answers	Theoretical + practical	third	Types of reproduction in fungi	4	third
questions and answers	Theoretical + practical	fourth	Reproductive organs and methods of sexual reproduction	4	fourth
questions and answers	Theoretical + practical	Fifth	Methods of nutrition in fungi	4	Fifth
Short questions	Theoretical + practical	sixth	Division of fungi	4	sixth
Short questions	Theoretical + practical	Seventh	Protista	4	Seventh
homework	Theoretical + practical	Eighth	Stramenopila	4	Eighth
questions and answers	Theoretical + practical	Ninth	True Fungi	4	Ninth
questions and answers	Theoretical + practical	The tenth	Blastocladiomycota	4	The tenth
Electronic test with various questions	Theoretical + practical	eleventh	Glomeromycota	4	eleventh
questions and answers	Theoretical + practical	twelfth	Zygomycota	4	twelfth
questions and answers	Theoretical + practical	Thirteenth	Ascomycota	4	Thirteenth
questions and answers	Theoretical + practical	fourteenth	The ancient division and modern division of the kingdom	4	fourteenth
questions and answers	Theoretical + practical	Fifteenth	Pezizomycotina	4	Fifteenth

Infrastructure	
Required readings: ▪ **Course books** ▪ **Other**	▪ Fayyad Mohamed Sharif 2019 / Fungal plant diseases ▪ Fayyad Muhammad Sharif / Fungi Ecology ▪ Muhammad Ali Ahmed / Kingdom of Fungi
Special requirements	View lectures in video and learn about the types of fungi that cause diseases.
Social services (including, for example, guest lectures, vocational training, and field studies)	Study of some infected plants obtained from some plant fields
Course development plan	1 .Supporting the course with modern sources and learning about the most important developments in the field of fungal diagnosis. 2 .Using advanced equipment in the process of diagnosing fungi 3 .Identify the most important fungal species used in food industries. 4 .Identify the most dangerous fungal species and methods of treating them. 5 .Study of black fungus, methods of infection, treatment, and molecular .

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

Master - Mohammed Abdulaziz Ismail Abdulaziz Al- Rawi

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**Theoretical Immunology (Stage IV)**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4 hours per week**
8. Date this description was prepare	**2022/3/1**

1- Upgrading the level of students to information that qualifies them for graduation and community service
2 - Developing the intellectual reality of the student
3 - Enriching it with life and scientific information
4- Interaction with the scientific material and collecting the largest possible amount of scientific material in the student's thought and transferring the scientific and practical benefit to him.

- Learning outcomes and teaching, learning and assessment methods

- Positive learning in the development of modern technologies as a means of consolidating information in the mind of the student

• Teaching and learning methods: the use of many modern means with some of the most accurate illustrative means such as illustrations and the use of computers
• Evaluation methods: Extracurricular evaluation is represented by giving homework with some oral questions within the lecture and presenting questions that encourage interaction with the lecture.
• C- Thinking skills: Conducting the presentation of some questions during the explanation to ensure the student's interaction during the presentation of the lecture electronically, and make him interact intellectually with the accessories of the scientific lecture
• Teaching and learning methods
• Evaluation methods
• D. General and transferable skills (other skills related to employability and personal development).

Course Structure					
The week	**Hours**	**Required Learning Outcomes**	**Name of the unit/course or topic**	**Method of education**	**Evaluation method**
First	4	Photographers + PDF+ Video Show	Definition of immunology and its relationship to other sciences	Electronic	Oral questions and homework
Second	4	Photographers + PDF+ Video Show	Immune barriers	Electronic	Oral questions and homework
Third	4	Photographers + PDF+ Video Show	Lymphatic organs and tissues	Electronic	Oral questions and homework
Fourth	4	Photographers + PDF+ Video Show	Cellular elements of the immune system	Electronic	Oral questions and homework
Five	4	Photographers + PDF+ Video Show	Antigens and inhibitors	Electronic	Oral questions and homework
Sixth	4	Photographers + PDF+ Video Show	Immunoglobulins	Electronic	Oral questions and homework
Seventh	4	Photographers + PDF+ Video Show	Surface markers	Electronic	Oral questions and homework
Eighth	4	Photographers + PDF+ Video Show	Phagocytosis	Electronic	Oral questions and homework
Ninth	4	Photographers + PDF+ Video Show	Primary immune response	Electronic	Oral questions and homework
Ten	4	Photographers + PDF+ Video Show	Humoral and intermediate response of cells	Electronic	Oral questions and homework

Admission	
Prerequisites	Regular blackboard
The lower number of students	50 students
The largest number of students	100 Students

Infrastructure	
Required readings: ▪ **Course books** ▪ **Other**	Methodological book Immunology in addition to other electronic sources
Special requirements	Seeking to find modern sources of immunity for the purpose of keeping pace with the outside world and developing the level of students to advance the social reality of the country
Social services (including, for example, guest lectures, vocational training, and field studies)	

D. Nafee Ahmed Saud

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…s
2. University department/center	**Department of biology**
3. Course name/code	**Embryology**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**second semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/4/10**

✓ Studying embryonic formation(Embryogenesis) and comparing it between living organisms
✓ Learning about the modern techniques used in invitro fertilization and artificial insemination

- Learning outcomes and methods of teaching, learning and evaluation.

- Teaching and learning methods

• Using a group of educational films and illustrations in addition to traditional methods
• Evaluation methods
• Daily and monthly exams
• Thinking skills**:** ✓ Many anatomical skills and conducting practical experiments, because embryology depends a lot on conducting analyzes and anatomy to study and know the organs of the reproductive system and the stages of fetal development in various living organisms.
• Many skills in identifying, identifying, mummifying, preserving and diagnosing parasites organisms
• Teaching and learning methods

Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or subject**	**Required learning outcomes**	**Hours**	**Week**
questions and answers	theoretical	First	Definition of embryology and embryogenesis, evolutionary foundations.	2	first
questions and answers	Theoretical and practical	second	Spermatogenesis	2	second
questions and answers	Theoretical and practical	Third	Oogenesis	2	third
questions and answers	Theoretical and practical	Fourth	Fertilization	2	fourth
questions and answers	Theoretical and practical	Fifth	Cleavage	2	Fifth
questions and answers	Theoretical and practical	Sixth	First month exam	2	sixth
questions and answers	Theoretical and practical	Seventh	Embryogenesis of Amphioxus	4	Seventh+ Eighth
questions and answers	Theoretical and practical	Eighth	Frog Embryogenesis	4	Ninth+ tenth
questions and answers	Theoretical and practical	Ninth	Embryonic formation in birds	4	Eleventh+ twelveth
questions and answers	Theoretical and practical	Tenth	Assisted reproductive technologies	4	Thirteenth+ Fourteenth
questions and answers	Theoretical and practical	Eleventh	Second month exam	2	Fifteenth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Preservatives
Social services (including, for example, guest lectures, vocational training, and field studies)	Training in diagnosing samples and methods of preserving them

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

D. Nafee Ahmed Saud

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

	…s
2. University department/center	**Department of biology**
3. Course name/code	**Zoology**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/4/10**

✓ Course objectives: : Identifying the aspects of life, the types of microscopes, the cell and its organelles, and the origin of life, in addition to the classification of living organisms in general and the most important branches of zoology.

- Learning outcomes and methods of teaching, learning and evaluation.

- Teaching and learning methods

- Using a group of educational films and illustrations in addition to traditional methods

- Evaluation methods

- Daily and monthly exams

- Thinking skills**:**

✓ Many anatomical skills and conducting practical experiments, because embryology depends a lot on conducting analyzes and anatomy to study and know the organs of the reproductive system and the stages of fetal development in various living organisms.

- Many skills in identifying, identifying, mummifying, preserving and diagnosing parasites organisms

- Teaching and learning methods

- Theory, practice and discussions

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

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
questions and answers	theoretical	First	The importance of zoology, its branches, aspects of life and its origin.	2	first
questions and answers	Theoretical and practical	second	Microscope and its types	2	second
questions and answers	Theoretical and practical	Third	The cell and its organelles	4	Third + fourth
questions and answers	Theoretical and practical	Fourth	Cell division	2	Fifth
questions and answers	Theoretical and practical	Fifth	Tissues	2	sixth
questions and answers	Theoretical and practical		First month exam	2	Seventh
questions and answers	Theoretical and practical	Sixth	Biodiversity	2	Eighth
questions and answers	Theoretical and practical	Seventh	Classification systems	2	Ninth
questions and answers	Theoretical and practical	Eighth	Animal kingdom	2	Tenth
			Review lessons	2	Eleventh
questions and answers	Theoretical and practical		Second month exam	2	Eleventh

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	Preservatives
Social services (including, for example, guest lectures, vocational training, and field studies)	Training in diagnosing samples and methods of preserving them

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	50
The largest number of students	100

D. BAKAA HAZIM ESMAIL

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**Endocrinology**
4. The programs he participates in	**Bachelor's degree/four level**
5. Available forms of attendance	**My presence**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**2 working hours/week * 8 weeks = 16 hours/semester**
8. Date this description was prepare	**1/4/2021**

A. 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 for teaching biology and science

1. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding

- ✓ Providing the student with knowledge related to the study of Endocrinology
- ✓ Providing the student with knowledge of the types of biology and their distribution
- ✓ Providing the student with knowledge By the precise composition of the types of endocrine glands

B- Subject-specific skills

- ✓ Providing the student with knowledge of the composition the endocrine glands and how to identify and diagnose them?
- ✓ Providing the student with knowledge of how to characterize and diagnose animals
- ✓ 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

- **Teaching and learning methods**

- Lecture, discussion, short reports, induction and measurement, and problem solving

- Evaluation methods

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

C- Thinking skills:

Ask various questions and brainstorm

- **Teaching and learning methods**

Discussion, lecture, and questioning

- **Evaluation methods**

- ✓ Achievement tests
- ✓ Test methods (interview and observation)
- ✓ Feedback from the student

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

1- Skills of verbal teaching behaviors such as discussion, dialogue, explanation and interpretation
2- Non-verbal teaching behavior skills such as visual communication between teacher and student, use illustration methods such as educational videos and pictures
3- Planning skill: such as the skill of determining the topic of the lesson, using appropriate means, preparing questions
4- Implementation skills: such as stimulating students' motivation, controlling and managing the classroom
5- Evaluation skills: such as preparing monthly, essay, objective tests

Course structure

Evaluation method	Teaching method	Name of unit/course or subject	Required learning outcomes	Hours	Week
Short questions	a lecture	An overview of the types of endocrine gland	Introduction to endocrine glands.	2	The First
Short questions	a lecture	Its composition and types of hormones it secretes	Hypothalamus	2	The Second
Short questions	a lecture	Its composition and types of hormones it secretes	pituitary gland	2	The Third
Short questions	a lecture	Its composition and types of hormones it secretes	pituitary gland	2	The Fourth
---	---		First month exam	2	Fifth
Short questions	a lecture	Its composition and types of hormones it secretes	Thyroid and parathyroid glands	2	Sixth
Short questions	a lecture	Its composition and types of hormones it secretes	Adrenal gland	2	Seventh
Short questions	a lecture	Its composition and types of hormones it secretes	Gonads	2	Eighth
	a lecture	Semester test	Semester test	2	Fourteenth
---	---	---	Review lessons	2	Eleventh

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	• Google classroom • Google meet • Google form • PowerPoint
Social services (including, for example, guest lectures, vocational training, and field studies)	Attending scientific seminars

Admission	
Prerequisites	Zoology
The lower number of students	Practical: 15 students
The largest number of students	Practical: 20 students

D. Bakaa Hazim Esmail

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**CHORDATO**
4. The programs he participates in	**Bachelor's degree/3RD level**
5. Available forms of attendance	**My presence**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**4 working hours/week * 15 weeks = 60 hours/semester**
8. Date this description was prepare	**10/11/2022**

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 educational methods for teaching the subject of chordate science

2. Learning outcomes and methods of teaching, learning and evaluation

A- Knowledge and understanding

- ✓ Providing the student with knowledge related to the study of chordata
- ✓ Providing the student with knowledge of the types of chordata and their heir structure and shapes

B- Subject-specific skills

- ✓ Providing the student with knowledge of the composition the endocrine glands and how to identify and diagnose them?
- ✓ Providing the student with knowledge of how to characterize and diagnose animals
- ✓ 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

- **Teaching and learning methods**

- Lecture, discussion, short reports, induction and measurement, and problem solving

- Evaluation methods

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

C- Thinking skills:

Ask various questions and brainstorm

- **Teaching and learning methods**

Discussion, lecture, and questioning

- **Evaluation methods**

- ✓ Achievement tests
- ✓ Test methods (interview and observation)
- ✓ Feedback from the student

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

1- Skills of verbal teaching behaviors such as discussion, dialogue, explanation and interpretation

2- Non-verbal teaching behavior skills such as visual communication between teacher and student, use illustration methods such as educational videos and pictures

3- Planning skill: such as the skill of determining the topic of the lesson, using appropriate means, preparing questions

4- Implementation skills: such as stimulating students' motivation, controlling and managing the classroom

5- Evaluation skills: such as preparing monthly, essay, objective tests

Course structure

Evaluation method	Teaching method	Name of the unit/course or subject	Required learning outcomes	hours	the week
Short questions	a lecture	An overview of the types and shapes of chordates	introduction to chordates.	2	the first
Short questions	a lecture	Classification of chordates and their general features	introduction to chordates.	2	the second
Short questions	a lecture	its structure, and a comparison between the types of chordates	The integumentary system	2	the third
Short questions	a lecture	its sections, and a comparison between types	The digestive system	2	the fourth
---	---	---	First month exam		Fifth
Short questions	a lecture	its parts, and a comparison between types	The urinary system	2	Sixth
Short questions	a lecture	its parts, and a comparison between species	The male reproductive system	2	Seventh
Electronic test (various questions)	laboratory	its parts, and a comparison between species	The female reproductive system,	2	Eighth
---	---	month exam	Measure the level of knowledge and understanding	2	Ninth
---	---	review	review	2	Fifteenth

Infrastructure	
Required readings: Course books Other	Nothing
Special requirements	• Google classroom • Google meet • Google form • PowerPoint
Social services (including, for example, guest lectures, vocational training, and field studies)	Attending scientific seminars

Admission	
Prerequisites	CHORDATA
The lower number of students	Practical: 15 students
The largest number of students	Practical: 20 students

Assistant Prof. Dr. Mahmood Ali Shaher Al-Shaheen

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**General Botany**
4. The programs he participates in	**Google Classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**second semester / 2022-2023**
7. Number of study hours (total)	**4**
8. Date this description was prepare	**2022/3/12**
9. Course objectives: Introducing the student to general botany, its history, its relationship to other sciences, the division of the plant kingdom, the study of the plant cell and its components, a simplified idea of the structure of plant seeds, and giving the student an idea of the branches of plants that he will study in the advanced stages of study, such as plant anatomy, morphology, classification, and plant physiology.	

10. Learning outcomes, teaching, learning and assessment methods
The student learns about the branches of botany and is able to distinguish between plant and animal cells, as well as knowing how to classify plants and study them morphologically according to their type and environment.
A- Teaching and learning methods
Using the method of theoretical interactive lectures using the data show device, and enhancing this information with practical experiments that we conduct in the laboratory.
B- Evaluation methods
Daily and monthly exams and student participation
C- Thinking skills
Teaching and training students to link theoretical study with laboratory experiments to consolidate information about the nature of plants as living organisms, their importance to humans, and the descriptive and physiological differences of plants.
D - General and transferable skills (other skills related to employability and personal development) .
Make the student able to absorb this information and communicate it to his students after graduation.

11. THE COURSE STRUCTURE				
THE WEEKS	**Number of hours**	**REQUIRED LEARNING OUTCOMES**	Teaching method	**Evaluation method**
FIRST	4	Definition, history, branches of botany, and the distinctive characteristics of living organisms.	Theoretical	questions and answers
SECOND	4	Division of plants and definition of the different plant kingdoms, with examples of each kingdom.	Theoretical + practical	questions and answers
THIRD	4	The plant cell and its living components.	Theoretical + practical	questions and answers
FOURTH	4	Non-living components of the plant cell, composition of the plant cell wall	Theoretical + practical	questions and answers
FIFTH	FIRST MONTH EXAM			
SIXTH	4	Seed composition and germination factors.	Theoretical + practical	questions and answers
SEVENTH	4	Plant morphology: the study of the apparent and anatomical shape of vascular plants (roots and stems).	Theoretical + practical	questions and answers
EIGHTH	4	Plant morphology: the study of the apparent and anatomical form of vascular plants (Leaves and flowers)	Theoretical + practical	questions and answers
NINTH	4	Plant tissues: definition, types (meristematic tissue)	Theoretical + practical	questions and answers
TENTH	4	Plant tissues: (permanent tissues)	Theoretical + practical	questions and answers
ELEVENTH	4	A brief overview of plant physiology and the vital processes that take place inside the plant cell: photosynthesis	Theoretical + practical	questions and answers
TWELVES	SECOND MONTH EXAM			

Admission	
Prerequisites	NON
The lower number of students	50
The largest number of students	100

Infrastructure	
Required readings: ▪ **Course books** ▪ **Other**	GENERAL PLANT BASICS Written by: Dr. Badri Awaid Al-Ani
Special requirements	NON
Social services (including, for example, guest lectures, vocational training, and field studies)	NON

D. Baydaa Abdulsattar Attia

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

2. University department/center	**Department of biology**
3. Course name/code	**Plant morphology \Bio129**
4. The programs he participates in	**Presence**
5. Available forms of attendance	**First semester / 2022-2023**
6. Semester/year	**32 hour**
7. Number of study hours (total)	**2022/2/1**
8. Date this description was prepare	**Plant morphology \Bio129**

1 – Introducing the student to the history of botany ,the most important scientist and the most important science related to kingdom
2 -Definition of plant morphology and ,mentioning the type of plant phenotypic systems ,the evolutionary location of seed plants and their shapes to pollinate the plant.
3 -study of Roots(Function ,shapes, modified)
4 -study of Stem(function, shape, modified.
5 -study of Leaves (function ,shape, modified)
6 -study of Flower with essential parts (stamens , pistils) and nonessential parts (calyx , corolla) and study of inflorescence.
7- study of fruits and seeds

Course outcomes ,teaching methods, learning and assessment
Cognitive objectives
The skills objectives of the course . Providing the student with skill of collection and how to identify plant depending on shape of plant. The student knowing how to dividing each part in plant depending of modified of this parts. Providing the student with skill of linking the theoretical and practical parts. The student should use illustrative methods such as: plant in environment
assessment methods Monthly test (essay and objective) Activity Short cognitive and mental questions Reports Duties Final exam
Emotional and value-based objective Stimulating teamwork among students Developing the student skills and idea Stimulating brainstorming among student
Teaching and learning methods Discussion , lecture and questions
assessment methods achievement tests non-method tests(interview and observation) feedback from the student
General and qualifying transferable skills Skill of verbal teaching behaviors such as discussion and dialogue. Skills of non-verbal teaching behaviors such as visual communication between education videos and picture Planning skill ,such as the skill of determining the topic of the lesson and using appropriate means.

10- course structure

weak	Hours	Required learning outcomes	Teaching methods	Name of the unit \course	Assessment methods
1st	2 theoretical 2 practical	History of botany	History of botany	Lecture and laboratory	Short answer
2st	2 theoretical 2 practical	Roots(Function ,shapes, modified)	roots	Lecture and laboratory	Short answer
3st	2 theoretical 2 practical	Stem(function, shape, modified.	stems	Lecture and laboratory	Short answer
4st	2 theoretical 2 practical	Leaves(functions,shape ,modified)	leaves	Lecture and laboratory	Homework
5st	2 theoretical 2 practical	Requester determing understanding	Semester exam	-	Test presence
6st	2 theoretical 2 practical	F;ower (essential parts & non-essential parts	The flower	Lecturer Laboratory	Short answer
7st	2 theoretical 2 practica	Androecium	stamen	Lecture and laboratory	Short answer
78t	2 theoretical 2 practica	Gynoecium	pistils	Lecture and laboratory	Short answer
9st	2 theoretical 2 practica	Placentation type	placentation	Lecture and laboratory	Short answer
10st	2 theoretical 2 practical	Inflorescence	Inflorescence type	Lecturer Labrotary	Short answer
11st	2 theoretical 2 practical	Fruties and seed	Fruiets type	Lecturer Labrotary	Short answer
12st	2theoretical 2 practical	Requester determining understanding	Semester exam	--	Test presence

11- Infrastructure

1- Required prescribed books	1 -Al-musawi,ali hussain ,seed plant taxonomy 2 – Al-katteb,yousef Mansur([pant taxonomy)
2 Main reference	Abdul-malk,aulami,Algeria(based of plant biology)

Assistant Prof. Dr. Farqad Hawass Musa

Course description form

Reviewing the performance of higher education institutions (academic program review)

This course description provides a succinct summary of the most important course characteristics and the learning outcomes the student is expected to achieve. Demonstrating whether they have made the most of the learning opportunities available. It must be linked to a description the program.

1. Ed	Anbar University, College of Education for Pure Sciences
2. University department/center	**Department of biology**
3. Course name/code	**Plant anatomy Bio237**
4. The programs he participates in	**Google classroom**
5. Available forms of attendance	**Google hangout meet**
6. Semester/year	**First semester / 2022-2023**
7. Number of study hours (total)	**60 hour**
8. Date this description was prepare	**2022/9/5**

1 .Introducing the student to the scientific subject and the internal anatomy of plants.

2 .Introducing the student to the types of plant tissues that make up the plant body.

3. Identify the form and function of each plant tissue.

9. Learning outcomes and methods of teaching, learning and evaluation
Teaching and learning methods
Using a group of educational films and illustrations in addition to traditional methods Article and objectivity.
Evaluation methods
Daily and monthly exams
Thinking skills
Teaching and learning methods
Theory, practice and discussions
General and transferable skills (other skills related to employability and personal development).Various questions, homework, asking questions during the lecture.

Course structure					
Evaluation method	**Teaching method**	**Name of unit/course or subject**	**Required learning outcomes**	**Hours**	**Week**
questions and answers	theoretical	first	Introduction to anatomy Seed plants	4	first
questions and answers	theoretical	second	Sections of flowering plants and identifying some types	4	second
questions and answers	theoretical	third	Plant Cell	4	third
questions and answers	theoretical	fourth	Chemical components of the cell wall	4	fourth
questions and answers	theoretical	Fifth	Plant cell protoplast	4	Fifth
questions and answers	theoretical	sixth	Types of plant cells and tissues	4	sixth
questions and answers	theoretical	Seventh	Theories of development and differentiation of meristematic tissues and types of meristematic tissues	4	Seventh
questions and answers	theoretical	Eighth	Lateral meristems	4	Eighth
questions and answers	theoretical	Ninth	Permanent tissue	4	Ninth
questions and answers	theoretical	The tenth	Connective tissue	4	The tenth
questions and answers	theoretical	eleventh	Types of skin cells	4	eleventh
questions and answers	theoretical	twelfth	Basic tissues in plants	4	twelfth
questions and answers	theoretical	Thirteenth	Classification of sclerenchyma tissues	4	Thirteenth
questions and answers	theoretical	fourteenth	Vascular tissue/wood	4	fourteenth
questions and answers	theoretical	Fifteenth	Vascular tissue/phloem	4	Fifteenth

Infrastructure	
Required readings: ▪ **Course books** ▪ **Other**	Methodical book / plant anatomy, Prof. Dr. Badri Awaid Al-Ani + information from the Internet
Special requirements	Displaying different tissue sections and plant parts via Data Show + research in the field
Social services (including, for example, guest lectures, vocational training, and field studies)	Field trips to learn about plant types

Admission	
Prerequisites	What the student studied in previous years
The lower number of students	20
The largest number of students	30