



Academic Program Description Template



University Name: Tikrit University

College/Institute: College of Education for Women

Department: Department of Life Sciences

Academic or Professional Program Name: Doctorate of Science in Life Sciences

Certificate Name: Doctorate of Science in Life Sciences

Academic System: course

Date of Description Preparation: 2/11/2025

Date of File Completion: 2/11/2025

Department Head: Assistant Professor Dr. Ali Muayad Sultan

Date:

Signature:

Deputy Scientific : Professor Dr. Ashraf Jamal Mahmoud

Date:

Signature:

File Reviewed by:

Quality Assurance and University Performance Division

Name of Director of Quality Assurance and University Performance Division:

Date:

Signature:

Dean's Approval

Prof. Dr. Najla Abdul Hussein Alawi





Academic Program Description Template



University Name: Tikrit University

College/Institute: College of Education for Women

Department: Department of Life Sciences

Academic or Professional Program Name: Master of Science in Life Sciences

Certificate Name: Master of Science in Life Sciences

Academic System: course

Date of Description Preparation: 2/11/2025

Date of File Completion: 2/11/2025

Department Head: Assistant Professor Dr. Ali Muayad Sultan

Date:

Signature:

Deputy Scientific : Professor Dr. Ashraf Jamal Mahmoud

Date:

Signature:

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Quality Assurance and University Performance Division

Name of Director of Quality Assurance and University Performance Division:

Date:

Signature:

Dean's Approval

Prof. Dr. Najla Abdul Hussein Alawi



**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

Academic Program and Course Description Guide

2026-2025

Introduction:

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

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staP 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, quaJerly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Tikrit
Faculty/Institute: College for Women Education
Scientific Department: Biology
Academic or Professional Program Name: Biology
Final Certificate Name: Ph.D
Academic System: semester
Description Preparation Date: 18/1/2026
File Completion: Date: 18/9/2024

Signature:

Head of Department Name:

Ass.st.prof.Dr. Ali Moyad Sultan

Date: 18 /1/2026

Signature:

Scientific Associate Name:

prof.Dr.Ashraf Jamal Mahmood

Date: 18 /1/2026

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department: Date:

Signature:

Name: Lec. Shahad Khalid Hameed

Approval of the Dean

1. Program Vision				
Preparing female students who have a cognitive and practical interest in the environment, the ecosystem, and its protection				
2. Program Mission				
Defining the environmental system and its relationship to other sciences and the factors affecting the environment and those affected by it				
3. Program Objectives				
1. 1- Definition of environmental pollution, its sources, types and harms				
2. 2- Definition of bioremediation technologies for pollution				
3. 3- The importance of protecting the environment from pollution and its impact on living organisms				
4. Program Accreditation				
Theoretical and practical exams, oral questions, and preparing scientific reports				
5. Other external influences				
Ministry of Higher Education and Scientific Research, Tikrit University, College of Education for Girls, and Department of Life Sciences				
6 Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews•
Institution Requirements	1 courses	2 hours		
College Requirements	2	2 hours		

Department Requirements	2	2 hours		
Summer Training				
Other				

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

7. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
Courses		Biological treatment	theoretical	
			2 hours	
9. Teaching and Learning Strategies				
Theoretical lectures, computer and internet, electronic communication programs				
10. Evaluation methods				
Theoretical and practical exams, oral questions and preparation of scientific reports				

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Ph.D	Biology	Ecology				
Professional Development						
Mentoring new faculty members						
Briefly describes the process used to mentor new, visiting, full—time, and part—time faculty at the institution and department level.						
Professional development of faculty members						
Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.						
12. Acceptance Criterion						
(Setting regulations related to enrollment in the college or institute, whether central admission or others)						
13. The most important sources of information about the program						
State briefly the sources of information about the program.						
14. Program Development Plan						

				Required program Learning outcomes												
Year/Level	Course Code	Course Name		Knowledge				Skills				Ethics				
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	
2024		Biology	Basic													
Third stage																

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

Course Description Form

1. Course Name:					
Biological treatment					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Abid Ahmad Erdeni E mail: bioerdene@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1- Definition of environmental pollution, its sources, types and harms				.....	
2- Definition of bioremediation technologies for pollution				.....	
3- The importance of protecting the environment from pollution and its impact on living organisms				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
1	2	Learn about general concepts in the environment	Introduction to Environmental Science	Lectures	Exams

2	2	Learn about the types and sources of pollution	Introduction to Pollution	Lectures	Exams
5-3	6	Learn about the types of pollution treatment	Types of Pollution Treatment	Lectures	Exams
6	2	Evaluative exam			
7	2	Physical treatment	Physical Treatment	Lectures	Exams
8	2	Chemical treatment	Chemical Treatment	Lectures	Exams
15-9	14	Types and technologies of bioremediation	Bioremediation (with Plants, Bacteria, Fungi and Cyanobacteria)	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:					
Endocrine glands					
2. Course Code:					
Endocrine glands / Ph.D					
3. Semester / Year:					
Semester /2025-2026					
4. Description Preparation Date:					
26/8/2026					
5. Available Attendance Forms:					
In-Person attendance in the classroom with an online lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30 hourse / 2 Units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Hala Hameed Majeed					
E mail: Halahameed@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1-To enable students to become familiar with endocrinology as afundamental branch of life sciences.				.....	
2-To help students understand hormones and their role in regulating vital processes in the human body, including growth, reproduction, and metabolism.				.....	
.					
9. Teaching and Learning Strategies					
Strategy		Providing psychological motivation to achieve scientific goals			
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
1	2	Understanding the topic of the lecture	Endocrine glands,their types and functions	My presence	Classroom performance and exams

2-3	4	Understanding the topic of the lecture	Thyroid hormone - stimulating hormone	My presence	Classroom performance and exams
4-5	4	Understanding the topic of the lecture	Pituitary gland	My presence	Classroom performance and exams
6-7	4	Understanding the topic of the lecture	Ovulation hormone	My presence	Classroom performance and exams
8-9	4	Understanding the topic of the lecture	Growth hormone	My presence	Classroom performance and exams
10-11	4	Understanding the topic of the lecture	Parathyroid gland	My presence	Classroom performance and exams
12-13	4	Understanding the topic of the lecture	Female hormones	My presence	Classroom performance and exams
14-15	4	Understanding the topic of the lecture	male hormones	My presence	Classroom performance and exams

11-Course Evaluation	
The distribution of marks out of 100 is as follows The monthly exam is out of 30 marks The final exam is out of 70 marks	
12-Learning and teaching Resources	
1-Endocrine glands and their hormones	Prof . Dr.Ahmed Al-magdoub Al-Qamati
2-Oxidative stress in health and disease	Dr. Luay Abd Ali Al-Hilali
3- Reproductive physiology	M.Rehab Ghaleb Mohammed, M. Fadel Abbas Radhi
4- Internet Sites	1-University websites that provide scientific information on endocrinology

Course description form

1. Course Name: Medical Parasitology	
2- Course code:	
3. Term/Year: My Term	
4. Date this description was prepared	
18/1/2025 .١	
Available attendance forms:	
In-person and online lectures	
Number of study hours (total) / Number of units (total):	
26 ساعة	
Name of the course coordinator (if there is more than one, please mention it).	
.٢	
Dr. Rania Ghassan Abd Rashid	
rGhasan@tu.edu.iq	
3- Course Objectives	
	1. To enable students to identify medically important parasite species.

	2. To familiarize students with methods of diagnosing parasites and methods of preventing infection. 3. To enable students to understand the material and present it in a simplified and understandable way, allowing them to grasp the subject easily.
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4-Teaching and learning strategies

1. Providing psychological motivation to achieve scientific goals 2. Presenting up-to-date scientific lectures from diverse sources	Strategy
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4- Course Structure

assessment method	learning method	Unit or topic name, ,	Required learning outcomes	Watches	week
exams	Lectures,	General guidelines on the study of parasites and the use of the microscope	Understanding the concepts of the topic and mastering its applications with examples	2	1
exams	Lectures,	Amoeba parasitic in humans	Understanding the concepts of the topic and mastering its applications	2	2

			with examples		
exams	Lectures,	animal and blood sporozoites	Understanding the concepts of the topic and mastering its applications with examples	6	3-5
exams	Lectures,	Haemoflagellates	Understanding the concepts of the topic and mastering its applications with examples	2	6
exams	Lectures,	Toxoplasma	Understanding the concepts of the topic and mastering its applications with examples	2	7
exams	Lectures,	Platyhelminthis Phylum Flatworms	Understanding the concepts of the topic and mastering its applications with examples	2	8
exams	Lectures,	Phylum Nematoda,	Understanding the concepts of the topic and mastering its applications with examples	14	9-15
5–Course Evaluation					
The grade is distributed out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written exams, reports, etc.					

5– Learning and Teaching Resources .o	
Essentials of Medical Parasitology	1.
Panikers Textbook of Medical Parasitology	Main References (Sources)
Scientific research from Google Scholar	Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)
None	Required Textbooks Electronic Resources, Websites

Course Description Form

1. Course Name:					
Advanced Bacteriology					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2025					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Firas Adnan Hussein E mail: firas.adnan@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1- Identifying types of bacteria and their sources				.....	
2- Enabling female students to understand their importance.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
1	2	Introduction to general concepts of bacteria	Microbiology	Lectures	Exams

2	2	Identification of internal structures	Microbiology	Lectures	Exams
3	2	Understanding types of bacteria and their sources	Microbiology	Lectures	Exams
4	2	Understanding their medical importance	Pathogenic bacteria	Lectures	Exams
5	2	Understanding their industrial and food importance	Dairy and food microbiology	Lectures	Exams
6	2	Evaluative exam			
7	2	Biochemical Tests	Microbiology	Lectures	Exams
8	2	Biological and Chemical Control	Microbiology	Lectures	Exams
9-14	12	Bacterial Metabolism	Microbiology	Lectures	Exams
15	2	Bacterial Genetics	Microbiology	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:	
Cell Physiology	
2. Course Code:	
3. Semester / Year:	
2025-2026/Second Semester	
4. Description Preparation Date:	
1/9/2025	
5. Available Attendance Forms:	
In-person classroom attendance combined with an online lecture.	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hourse/ 2 unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Shurooq Hameed Majeed Alnassiri Email: shurooq_bio@tu.edu.iq	
8. Course Objectives	
Course Objectives	 • Understanding molecular mechanisms and comprehending the precise functioning of cell membranes, organelles, and biological systems. • Studying cellular transport and analyzing mechanisms of active transport, vesicular transport, and membrane potential. • Understanding cell signaling pathways. • Linking cellular-level dysfunctions to organic diseases. • Providing students with the latest discoveries regarding cellular homeostasis and programmed cell

	death (apoptosis). • Enabling students to interpret graphs and draw conclusions from complex cellular experiments.
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9. Teaching and Learning Strategies

Strategy	• Using explanation and clarification to present the topic's concepts. • Expository method, lecturing, text-based instruction, and descriptive, analytical, and inductive approaches. • Problem-solving method; formative assessment (daily quizzes, classroom discussions, homework assignments and follow-up, scientific report writing and data analysis, classroom-based assessment). • Diagnostic/summative assessment (midterm and final exams to determine pass/fail status). • Utilizing e-learning and blended learning. • Employing cooperative learning and peer-teaching strategies. • Brainstorming by encouraging students to deduce mechanisms of cellular transport and communication prior to the formal explanation.
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Cell Biology and Its Relationship to Other Sciences	Cytology: the relationship of cytology to other sciences, the cell, cell theory, and the common characteristics of cells.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
2-3	4	The Bacterial Cell and Its Structure	Comparison between prokaryotic and eukaryotic cells, prokaryotic cells, bacterial cell, cell structure, cell wall, plasma membrane, nucleoid region, ribosomes,	In-person lectures, online lectures, discussions with in-class questions, and	Daily and monthly written exams, along with homework

			vacuole, flagella, capsule.	the use of the smart board and stylus.	assignments and reports.
4	2	Viruses	Viruses, the viral reproductive cycle,	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
5-6	4	Eukaryotes	Eukaryotes, eukaryotic cell division, plasma membrane, membrane carbohydrates, membrane proteins, functional activity of the plasma membrane.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
7-8	4	Exocytosis and osmosis	Exocytosis, free diffusion, the mechanism of facilitated transport (efflux), active transport and ion pumping, osmosis, the scientific definition of osmosis, examples of osmosis, and osmotic pressure in living organisms.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
9	2		Mid-semester exam		
10-11	4	The Nucleus	Nucleus, interphase nucleus, nuclear envelope.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
12	2	Cell parts	The nucleolus, mitochondria, the ultrastructure of mitochondria, cristae.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
13	2	Chemical composition	Chemical composition, origin, and functions of mitochondria.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
14-15	4	Endoplasmic reticulum	Endoplasmic reticulum, components of the endoplasmic reticulum, ultrastructure of the endoplasmic reticulum, functions of the endoplasmic reticulum, origin of the endoplasmic reticulum, lysosomes.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.

9. Course Evaluation

The course grade (out of 100) is distributed as follows:

- Mid-term assessment: 30 marks, allocated based on assigned student tasks (5 marks for daily preparation, quizzes, and reports; 25 marks for the written monthly exam).
- Final exam: 70 marks.

10. Learning and Teaching Resources

Main references (sources)

- <https://un.uobasrah.edu.iq/lectures/12772.pdf>
- Oxidative Stress in Health and Disease: Assistant Professor Dr. Luay Abdul-Ali Al-Hilali, 2017.

Recommended books and references (scientific journals, reports...)

- Cytology: Ministerial outlines and lectures from the Faculties of Science and Education.
- Cell Physiology Source Book: Authored by Nicholas Sperelakis.

Electronic References, Wabsites

- Reputable websites.
- Virtual libraries.
- University websites offering educational materials on cell physiology.
- Online scientific articles and research papers in the field of cell physiology.

Course Description Form

1. Course Name:	
Pathophysiology	
2. Course Code:	
3. Semester / Year:	
2025-2026/First Semester	
4. Description Preparation Date:	
1/9/2025	
5. Available Attendance Forms:	
In-person classroom attendance combined with an online lecture.	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hourse/ 2 unit	
7. Course administrator's name (mention all, if more than one name)	
Name: Shurooq Hameed Majeed Alnassiri Email: shurooq_bio@tu.edu.iq	
8. Course Objectives	
Course Objectives	 •Understanding cellular mechanisms and studying changes at the molecular and organ levels during the onset of disease. •Analyzing pathogenesis and explaining the causes and progression of diseases across various body systems. •Linking functional impairments and understanding how a dysfunction in one system affects other body systems. •Applying pathophysiological concepts to interpret clinical signs and symptoms.
9. Teaching and Learning Strategies	

Strategy	•Using explanation and clarification to present the subject's concepts. •Deductive method, lecturing, text-based approach, and descriptive, analytical, and inductive methods. •Problem-solving method; formative assessment (daily quizzes, classroom discussions, homework and follow-up, scientific report writing and data analysis, classroom assessment). •Diagnostic assessment (midterm and final exams to determine pass/fail status). •Utilizing e-learning and blended learning. •Employing cooperative learning and peer-teaching methods."
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	4	Chapter Two	Cancer: Definition and symptoms; abnormal pathways; mechanisms of tumor formation; treatment; the role of oxidation; and treatments involving oxidation.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
3-4	4	Chapter Two	Cataracts: Definition of cataracts, description of the eye, abnormal pathways associated with cataracts, oxidation and cataracts, sources of oxidation in the disease, and ocular antioxidant defense mechanisms	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
5-6	4	Chapter Two	Osteoporosis: Definition and causes of osteoporosis; osteoporosis and oxidative stress.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
7	2	Chapter Two	Rheumatism: Definition of the disease, symptoms, synovial joints, and the relationship	In-person lectures, online lectures, discussions with in-	Daily and monthly written exams, along with

			between rheumatism and oxidation.	class questions, and the use of the smart board and stylus.	homework assignments and reports.
8-9	4	Chapter Two	Peptic Ulcer: Definition of the disease, stomach functions, gastric ulcer, duodenal ulcer, causes of peptic ulcers, and peptic ulcers and oxidative stress.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
10	2		Mid-semester exam		
11-12	4	Chapter Two	Renal failure: definition of the disease, clinical symptoms, acute renal failure, chronic renal failure, uremia, renal failure and oxidative stress, hemodialysis, hemodialysis and oxidative stress.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
13	2	Chapter Three	Obesity: Definition of obesity, fat cells, global measurements and indicators of obesity, diseases caused by obesity, and obesity and oxidative stress.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
14	2	Chapter Three	Smoking: Definition and harmful effects; smoking and the hookah (nargileh); both forms of smoking and oxidation.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.
15	2	Chapter Three	Pregnancy: Definition of pregnancy; pregnancy and oxidation.	In-person lectures, online lectures, discussions with in-class questions, and the use of the smart board and stylus.	Daily and monthly written exams, along with homework assignments and reports.

9. Course Evaluation

The course grade (out of 100) is distributed as follows:

- Mid-term assessment: 30 marks, allocated based on assigned student tasks (5 marks for daily preparation, quizzes, and reports; 25 marks for the written monthly exam).
- Final exam: 70 marks.

10. Learning and Teaching Resources

Main references (sources)

- Oxidative Stress in Health and Disease: Assistant Professor Dr. Luay Abdul-Ali Al-Hilali, 2017.

Recommended books and references (scientific journals, reports...)

- Facts About Cancer – An Introduction to Modern Oncology: May Ramzi Al-Arnaout (2016), 1st Edition, Al-Rabban Publishing, United Kingdom.
- Robins and Cotran Pathologic Basis of Disease.

Electronic References, Wabsites

- University websites offering educational materials on pathophysiology.
- Online scientific articles and research papers in the field of pathophysiology.

Course Description Form

1. Course Name: Histology					
2. Course Code:					
3. Semester / Year: Second (PHD)					
4. Description Preparation Date: 16\2\2024					
5. Available Attendance Forms: Classrooms					
6. Number of Credit Hours (Total) / Number of Units (Total) 32\2					
7. Course administrator's name (mention all, if more than one name)					
Name: Israa Hashem Ali			Email: iAli@tu.edu.iq		
8. Course Objectives					
Course Objectives		Providing students with detailed information about Histology, including a historical overview of the emergence of this science, or its historical development, the factors influencing it and its most important elements, learning about the concept of Histology and its relationship to other sciences, studying modern theories and the most important modern discoveries, and everything related to the growth and development of the tissues.			
9. Teaching and Learning Strategies					
Strategy		Standard method (automatic). -Text method. -Inductive (deductive) method. - How to solve problems.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
September 4	2		Introduction	standard method How to solve problems	in class performance and exams
September	2		Digestive system	standard method	in class

er 11				How to solve problems	performance and exams
September 18	2		Digestive system	standard method How to solve problems	in class performance and exams
September 25	2		digestive system accessories	standard method How to solve problems	in class performance and exams
October 2	2		Cutaneous system	standard method How to solve problems	in class performance and exams
October 9	2		Skin device accessories	standard method How to solve problems	in class performance and exams
October 16	2		Excretory system	standard method How to solve problems	in class performance and exams
October 23	2		Male reproductive system	standard method How to solve problems	in class performance and exams
October 30	2		female reproductive system	standard method How to solve problems	in class performance and exams
November 6	2		Nervous system	standard method How to solve problems	in class performance and exams
November 13	2		Skeletal system	standard method How to solve problems	in class performance and exams
November 19	2		Muscular system	standard method How to solve problems	in class performance and exams
November 26	2		Circulatory system	standard method How to solve problems	in class performance and exams
December 4	2		Circulatory system	standard method How to solve problems	in class performance and exams
December 11	2		Lymphatic system	How to solve problems	in class performance and exams
December 18	2		First semester exam		

course Evaluations

Formative or formative assessment (daily exams, class discussion, homework assignments and their follow-up, classroom calendar).

-Diagnostic evaluation (30 semester exams and 70 final exams to issue judgments of success and failure)

Learning and Teaching Resources

Physiology - Shtiwi Al-Abdullah

Fundamentals of histology by Janqueira

Scientific journals issued by colleges of medicine, veterinary medicine, and science

Scientific, medical and health websites

Course Description Form

1. Course Name: Histology					
2. Course Code:					
3. Semester / Year: Second (Master)					
4. Description Preparation Date: 16/2/2024					
5. Available Attendance Forms: Classrooms					
6. Number of Credit Hours (Total) / Number of Units (Total) 32\2					
7. Course administrator's name (mention all, if more than one name)					
Name: Israa Hashem Ali			Email: iAli@tu.edu.iq		
8. Course Objectives					
Course Objectives		Providing students with detailed information about Histology, including a historical overview of the emergence of this science or its historical development, the factors influencing it and its most important elements, learning about the concept of Histology and its relationship to other sciences, studying modern theories and the most important modern discoveries, and everything related to the growth and development of the tissues.			
9. Teaching and Learning Strategies					
Strategy		Standard method (automatic). -Text method. -Inductive (deductive) method. - How to solve problems.			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
February 4	2		Introduction	standard method How to solve	in class performance

				problems	and exams
February 11	2		Digestive system	standard method How to solve problems	in class performance and exams
February 18	2		Digestive system	standard method How to solve problems	in class performance and exams
February 25	2		digestive system accessories	standard method How to solve problems	in class performance and exams
March 3	2		Cutaneous system	standard method How to solve problems	in class performance and exams
March 10	2		Skin device accessories	standard method How to solve problems	in class performance and exams
March 17	2		Excretory system	standard method How to solve problems	in class performance and exams
March 24	2		Male reproductive system	standard method How to solve problems	in class performance and exams
March 31	2		female reproductive system	standard method How to solve problems	in class performance and exams
April 7	2		Nervous system	standard method How to solve problems	in class performance and exams
April 14	2		Skeletal system	standard method How to solve problems	in class performance and exams
April 21	2		Muscular system	standard method How to solve problems	in class performance and exams
April 28	2		Circulatory system	standard method How to solve problems	in class performance and exams
May 5	2		Circulatory system	standard method How to solve problems	in class performance and exams
May 13	2		Lymphatic system	How to solve problems	in class performance and exams
May 19	2		First semester exam		

course Evaluations

Formative or formative assessment (daily exams, class discussion, homework assignments and their follow-up, classroom calendar).

-Diagnostic evaluation (30 semester exams and 70 final exams to issue judgments of success and failure)

Learning and Teaching Resources

Histology - Planets Ahmed Hamed Al-Haj

Scientific journals issued by colleges of medicine, veterinary medicine, and science

Scientific, medical and health websites

Course Description Form

1. Course Name:					
Biotechnology					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Abid Ahmad Erdeni E mail: bioerdene@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1- Definition of Biotechnology, its sources, types and harms				.....	
2-Teaching students the importance role of biotechnology on humen life.				.....	
3- The importance of biotechnology exiperments.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
١	٢	Learn about general concepts	Introduction to biotechnology	Lectures	Exams

۲	۲			Lectures	Exams
-۳	۶	Learn about general concepts	Operational strategies in genetic engineering research	Lectures	Exams
4	۲	Learn about general concepts	Gene isolation		Exams
5	۲	Learn about general concepts	Gene Carrier	Lectures	Exams
6	۲	Learn about general concepts	Introduction of recombinant DNA	Lectures	Exams
۷	۱۴	Learn about general concepts	Selection of cells that have acquired the recombinant plasmid.	Lectures	Exams
8		Learn about general concepts	Plasmids	Lectures	Exams
9		Learn about general concepts	Exam	Lectures	Exams
10		Learn about general concepts	Gene delivery method based on a gene carrier	Lectures	Exams
11		Learn about general concepts	Vector-free method of gene delivery	Lectures	Exams
12		Learn about general concepts	Cell and Tissue Culture	Lectures	Exams

13		Learn about general concepts	Production of plants that make BT protein	Lectures	Exams
14		Learn about general concepts	Biotechnology applications in field crops	Lectures	Exams
15		Learn about general concepts	Exam	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:	
Oxidative stress	
2. Course Code:	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
18/8/2025	
5. Available Attendance Forms:	
Class Lecture + electronic lecture	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hourse	
7. Course administrator's name (mention all, if more than one name)	
Name: Prof. Dr. Iktifa Abdel-Hamid Mohamed Saeed E mail: iktifaa_kumait@tu.edu.iq	
8. Course Objectives	
This course aims to deepen the doctoral student's understanding of the molecular mechanisms and cellular sources of reactive oxygen species (ROS), as well as their dual role as biological signaling molecules or stress agents. It focuses on analyzing the genetic pathways and signaling cascades (such as Nrf2) that regulate redox homeostasis and cell death, and examines the impact of redox imbalance on the pathogenesis of chronic diseases. Finally, the course seeks to equip researchers with advanced evaluative and experimental skills for measuring oxidative biomarkers and developing therapeutic strategies using antioxidants.	..... ..... .....
9. Teaching and Learning Strategies	
The teaching strategy combines interactive lectures—focused on the critical analysis of the latest scientific research—with advanced laboratory training in measuring oxidative biomarkers. It also emphasizes	

problem-based learning centered on research challenges and the design of scientific proposals to develop innovative therapeutic solutions.	
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10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
١	2		Oxidative Stress	Lectures	Exams
٢	2		Oxidative Stress, Diseases, and the Role of Antioxidants in Their Treatment	Lectures	Exams
-٣	2		Oxidation Mechanisms and Antioxidants in Common Diseases	Lectures	Exams
4	2		Atherosclerosis		Exams
5	2		Low-Density Lipoprotein (LDL) Oxidation	Lectures	Exams
6	2		Cancer	Lectures	Exams
7	2		Cataracts	Lectures	Exams
8	2		Renal failure	Lectures	Exams
9	2		Thyroid disorders	Lectures	Exams

10	2		Huntington's disease	Lectures	Exams
11	2		Oxidation mechanisms and antioxidants in certain oxidative conditions	Lectures	Exams
12	2		Pregnancy	Lectures	Exams
13	2		Smoking	Lectures	Exams
14	2		Obesity	Lectures	Exams
15	2		Alcohol	Lectures	Exams

11. Course Assessment	
Allocation of the 30-point grade based on assigned student tasks, such as daily preparation, daily quizzes, oral exams, monthly exams, written exams, reports, etc	
12. Learning and Teaching Resources	
Required Textbooks (Course Materials, if applicable)	Oxidative Stress in Health and Disease Dr. Luay Abdul-Ali Al-Hilali
Key References (Sources)	
Recommended supporting books and references (scientific journals, reports, etc)	
Electronic references and websites	Any relevant website on oxidative stress in health and disease

Course Description Form

1. Course Name:					
Biotechnology					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Salma Kh. Yaseen. E mail: salma_yaseen@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1- Definition of Biotechnology, its sources, types and harms				.....	
2-Teaching students the importance role of biotechnology on humen life.				.....	
3- The importance of biotechnology exiperments.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
Program Structure		Number of Courses	Credit Units	Percentage	Notes
Institution Requirements		2	30	Basic	
College Requirements		None			
Department Requirements		None			
Summer Training		None			

Other				
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* Notes may indicate whether the course is compulsory or elective.

11. Program Description

Year / Level	Course Code	Course Name	Credit Hours	Theoretical	Practical
First Semester 2025–2026		Advanced Plant Anatomy	2		
First Semester 2025–2026		Biochemistry	3		
First Semester 2025–2026		English Language	2		
First Semester 2025–2026		Biostatistics	2		
First Semester 2025–2026		Elective	2		
First Semester 2025–2026		Elective	2		
Second Semester 2025–2026		Plant Growth Regulators	2		
Second Semester 2025–2026		Research Methodology	2		
Second Semester 2025–2026		Seminar	2		
Second Semester 2025–2026		English Language	2		
Second Semester 2025–2026		Elective	2		
Second Semester 2025–2026		Elective	2		

12. Course Assessment

Distribution of the 30 marks according to the tasks assigned to students, such as daily preparation, daily, oral, monthly and written examinations, reports, etc.

13. Learning and Teaching Resources

Required prescribed textbooks, if any:

Principles and Fundamentals of Plant Physiology, Vol. 1 – Dr. Mohammed Nasr Al-Din Masoud Hally.

General Botany, Part Three – Plant Physiology – Prof. Dr. Ahmed Aslan Al-Jundi and Prof. Dr. Abdel Fattah Hassan Salim.

Main references (specialized scientific references): Specialized scientific references in plant physiology and plant growth regulators.

Recommended supporting books and references: Scientific journals, reports, etc.

Electronic references / websites: Specialized scientific websites in plant physiology and plant growth regulators.

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:					
Biotechnology					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Salma Kh. Yaseen. E mail: salma_yaseen@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1- Definition of Biotechnology, its sources, types and harms					
2-Teaching students the importance role of biotechnology on humen life.					
3- The importance of biotechnology exiperments.					
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
Program Structure		Number of Courses	Credit Units	Percentage	Notes
Institution Requirements		2	30	Basic	
College Requirements		None			
Department Requirements		None			
Summer Training		None			

Other				
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* Notes may indicate whether the course is compulsory or elective.

11. Program Description

Year / Level	Course Code	Course Name	Credit Hours	Theoretical	Practical
First Semester 2025–2026		Advanced Plant Anatomy	2		
First Semester 2025–2026		Biochemistry	3		
First Semester 2025–2026		English Language	2		
First Semester 2025–2026		Biostatistics	2		
First Semester 2025–2026		Elective	2		
First Semester 2025–2026		Elective	2		
Second Semester 2025–2026		Plant Growth Regulators	2		
Second Semester 2025–2026		Research Methodology	2		
Second Semester 2025–2026		Seminar	2		
Second Semester 2025–2026		English Language	2		
Second Semester 2025–2026		Elective	2		
Second Semester 2025–2026		Elective	2		

12. Course Assessment

Distribution of the 30 marks according to the tasks assigned to students, such as daily preparation, daily, oral, monthly and written examinations, reports, etc.

13. Learning and Teaching Resources

Required prescribed textbooks, if any:

Principles and Fundamentals of Plant Physiology, Vol. 1 – Dr. Mohammed Nasr Al-Din Masoud Hally.

General Botany, Part Three – Plant Physiology – Prof. Dr. Ahmed Aslan Al-Jundi and Prof. Dr. Abdel Fattah Hassan Salim.

Main references (specialized scientific references): Specialized scientific references in plant physiology and plant growth regulators.

Recommended supporting books and references: Scientific journals, reports, etc.

Electronic references / websites: Specialized scientific websites in plant physiology and plant growth regulators.

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:					
Design and Experiment Analysis					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hours					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Abid Ahmad Erdeni E mail: bioerdene@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1- Definition of experiment design, its sources, types and harms				.....	
2-Teaching students the importance of conducting the experiment according to the correct design.				.....	
3- The importance of conducting the experiment correctly.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
١	٢	Learn about general concepts	Introduction to experimental design Science	Lectures	Exams

۲	۲			Lectures	Exams
-۳	۶	Learn about general concepts	Statistical mathematical operations	Lectures	Exams
4	۲	Learn about general concepts	Analaysis of varience		Exams
5	۲	Learn about general concepts	CRD Design	Lectures	Exams
6	۲	Learn about general concepts	RCBD Design	Lectures	Exams
۷	۱۴	Learn about general concepts	Qi Squir Design	Lectures	Exams
8		Learn about general concepts	Factorial Exipermments	Lectures	Exams
9		Learn about general concepts	Exam	Lectures	Exams
10		Learn about general concepts	Examples of CRD design	Lectures	Exams
11		Learn about general concepts	Examples of RCBD design	Lectures	Exams
12		Learn about general concepts	Examples of Latin Squir design	Lectures	Exams

13		Learn about general concepts	Example on t test	Lectures	Exams
14		Learn about general concepts	Example on t test	Lectures	Exams
15		Learn about general concepts	Exam	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:			
Oxidative stress			
2. Course Code:			
3. Semester / Year:			
Semester			
4. Description Preparation Date:			
18/8/2025			
5. Available Attendance Forms:			
Class Lecture + electronic lecture			
6. Number of Credit Hours (Total) / Number of Units (Total)			
30 hourse			
7. Course administrator's name (mention all, if more than one name)			
Name: Prof. Dr. Iktifa Abdel-Hamid Mohamed Saeed E mail: iktifaa_kumait@tu.edu.iq			
8. Course Objectives			
- Studying blood components and their vital functions. - Interpreting blood disorders and laboratory test results. - Relating hematological concepts to clinical conditions.		..... ..... .....	
9. Teaching and Learning Strategies			
- Providing the psychological motivation to achieve academic goals. - Presenting modern scientific lectures that inspire students to appreciate the role and importance of hematology.			
10. Course Structure			
	Hours	Required Learning Outcomes	Evaluation method

١	2		Physical properties of blood	Lectures	Exams
٢	2		Red blood cells	Lectures	Exams
-٣	2		Hemoglobin (Hb)	Lectures	Exams
4	2		Red blood cell disorders		Exams
5	2		Macrocytic anemia	Lectures	Exams
6	2		Hereditary elliptocytosis	Lectures	Exams
7	2		Autoimmune hemolytic anemia	Lectures	Exams
8	2		White Blood Cells	Lectures	Exams
9	2		Causes of Increase and Decrease in the Differential Count	Lectures	Exams
10	2		Multiple Myeloma	Lectures	Exams
11	2		Hemostasis and Blood Coagulation	Lectures	Exams

12	2		EX	Lectures	Exams
13	2		Prevention of Blood Coagulation (In Vivo and In Vitro)	Lectures	Exams
14	2		Hemorrhagic Disorders	Lectures	Exams
15	2		Purpuras	Lectures	Exams

11. Course Assessment	
Allocation of the 30-point grade based on assigned student tasks, such as daily preparation, daily quizzes, oral exams, monthly exams, written exams, reports, etc	
12.Learning and Teaching Resources	
Required Textbooks (Course Materials, if applicable)	Hematology, Dr. Abdul-Majid Mustafa Al-Shaer, Dr. Hisham Deeb Kanaan, Dr. Ammar Ibrahim Al-Khatib
Key References (Sources)	
Recommended supporting books and references (scientific journals, reports, etc)	
Electronic references and websites	Any website related to ..hematology



ACADEMIC PROGRAM DESCRIPTION FORM



University Name: Tikrit University

College / Institute: College of Education for Women

Scientific Department: Department of Life Sciences

Academic or Professional Program Name: Postgraduate – Life Sciences

Final Degree: Master of Science in Life Sciences

Study System: Semester System

Date of Description Preparation: 2/11/2025

Date of File Completion: 2/11/2025

Signature:

Signature:

Head of Department: Assist. Prof. Dr. Ali Muayad Sultan

Scientific Assistant: Prof. Dr. Ashraf Jamal Mahmoud

Date:

Date:

Reviewed by: Quality Assurance and University Performance Division

Director of Quality Assurance and University Performance Division:

Date: 2026

Signature:

Approval of the Dean

1. PROGRAM VISION

The Department seeks to provide an educational program based on modern scientific research methods and curricula in the field of Life Sciences, using advanced teaching methods and modern technologies, in order to graduate highly competent specialized teaching staff in teaching, research, and other professions whose nature requires a distinguished informational background in Life Sciences, such as tourism, antiquities, libraries, archives, and others. Accordingly, the Department has a strategic vision of subjecting problems in Life Sciences to research and study in order to reach a scientific understanding within a framework that helps establish a scientific and cognitive vision leading to advancement in Life Sciences in society and to addressing and solving its problems.

2. PROGRAM MISSION

Providing an academic educational and research service through which graduates, male and female, in the field of Life Sciences can be prepared as holders of higher degrees, capable of performing their role within society positively and effectively, particularly in research within Life Sciences, teaching, conducting research, providing consultations, and presenting knowledge in Life Sciences that contributes to understanding and solving many problems facing society. The biologist has an essential, rather than secondary, role in the progress and development of society in order to achieve a bright future.

3. PROGRAM OBJECTIVES

1. Strengthening the mission and status of the College of Education for Women and Tikrit University in fulfilling their scientific mission and objectives.
2. Preparing specialized graduates in Life Sciences holding higher degrees to work in educational and employment fields in various community institutions and contribute to the development of modern Iraq.
3. Developing analytical skills and the ability to deconstruct biological material and reconstruct it systematically, becoming familiar with biological terms, concepts, and information, and developing skills in dealing with biological concepts.
4. Providing biological studies and research in all fields in order to contribute to community development and progress.
5. Directing the study of Life Sciences to serve society and research centers.
6. Employing scientific and technological development in education, studies, and biological research.
7. Conducting focused studies in biological sciences for undergraduate and postgraduate students through in-depth scientific research and analysis of information according to a scientific perspective.
8. Holding seminars and conferences addressing important problems in the biological field and developing solutions for them.
9. Participating in local, regional, and international scientific conferences by faculty members.
10. Scientific, cognitive, and cultural exchange with corresponding departments in Iraqi universities.

4. PROGRAM ACCREDITATION

No.

5. OTHER EXTERNAL INFLUENCES

6. PROGRAM STRUCTURE

Program Structure | Number of Courses | Credit Units | Percentage | Notes

Institution Requirements | 2 | 30 | Basic

College Requirements | None

Department Requirements | None

Summer Training | None

Other |

7. PROGRAM DESCRIPTION

Academic Year / Level | Course Code | Course Name | Credit Hours | Theoretical | Practical

First Semester 2025–2026

Industrial Microbiology — 2

Biochemistry — 3

English Language — 2

Biostatistics — 2

Elective — 2

Elective — 2

Second Semester 2025–2026

Plant Pathology — 2

Research Methodology — 2

Seminar — 2

English Language — 2

Elective — 2

Elective — 2

8. EXPECTED LEARNING OUTCOMES OF THE PROGRAM

Knowledge

Learning outcomes and methods of teaching and learning

1. Cognitive Objectives:

The student should be able to understand scientifically and objectively the philosophy of studying Industrial Microbiology.

The student should be able to form a clear picture of the structure of microorganisms, their mode of action, and their industrial interactions.

The student should become familiar with the overall specialization of Industrial Microbiology.

The student should learn modern technical skills in theoretical and practical study.

Skills

2. Program-specific skills objectives:

The student should be familiar with methods of teaching, measurement, and evaluation of the scientific subject.

The student should be able to select the appropriate teaching method for each scientific subject and present it in an engaging manner.

The student should be able to solve problems related to students' understanding of the scientific subject using educational psychology theories and modern educational methods, facilitating the study and teaching of Industrial Microbiology.

Values / Assessment Methods

1. Individual and group oral and written examinations, theoretical and practical.
2. Direct observation of the student's performance in dialogue, intellectual and scientific communication, and teamwork within the classroom and college/university environment.
3. Assigning students to prepare distinguished scientific research to test their ability to think, infer, and solve problems.

9. TEACHING AND LEARNING STRATEGIES

1. Lecture method, textual method, descriptive and analytical method, and inductive method.
2. Problem-solving method, formative assessment, daily examinations, classroom discussion, homework and follow-up, and classroom assessment.
3. Diagnostic assessment, midterm and final examinations for determining pass and fail.

10. ASSESSMENT METHODS

1. Individual and group oral and written examinations, theoretical and practical.

2. Direct observation of students' performance in dialogue, intellectual and practical communication, and teamwork within the classroom and university environment.
3. Assigning students to prepare distinguished scientific research to test their ability to think, infer, and solve problems.

Implemented throughout all stages of the program in general.

11. TEACHING STAFF

Academic Rank | General Specialization | Specific Specialization | Number

Professor — Parasitology — Parasitology — 2

Professor — Environment and Pollution — Environment and Pollution — 1

Assistant Professor — Microbiology — Environmental Microbiology — 1

Assistant Professor — Microbiology — Microbiology — 1

Assistant Professor — Histology and Embryology — Histology and Embryology — 1

Assistant Professor — Environment — Environment — 1

Assistant Professor — Comparative Anatomy — Comparative Anatomy — 1

Assistant Professor — Insects — Insects — 2

Assistant Professor — Parasitology — Parasitology — 1

Assistant Professor — Animal Physiology — Animal Physiology — 1

Assistant Professor — Plant — Plant — 1

Assistant Professor — Fungi — Fungi — 1

PROFESSIONAL DEVELOPMENT

Orientation of New Faculty Members

A brief description of the process used to orient new, visiting, full-time, and part-time faculty members at the institutional and departmental levels.

Professional Development for Faculty Members

A brief description of the plan and arrangements for academic and professional development of faculty members, including teaching and learning strategies, assessment of learning outcomes, professional development, and related matters.

12. ADMISSION CRITERIA

Regulations related to admission to the college or institute, whether through central admission or otherwise, are to be stated.

13. MAIN SOURCES OF INFORMATION ABOUT THE PROGRAM

To be stated briefly.

14. PROGRAM DEVELOPMENT PLAN

COURSE DESCRIPTION FORM

1. Course Name: Industrial Microbiology
2. Course Code:
3. Semester / Year: 2025–2026
4. Date of Preparation of This Description: 18/9/2025
5. Available Forms of Attendance: In-person; classroom lectures + electronic lectures
6. Total Study Hours / Total Units: 30 hours
7. Course Coordinator: Assist. Prof. Dr. Ru'aa Hassan Al-Taie

Email: roaahassan@tu.edu.iq

8. COURSE OBJECTIVES

Course objectives:

Enable students to become familiar with Industrial Microbiology and understand the mechanisms through which it can operate.

Introduce students to the most prominent scientists in Industrial Microbiology and their theories.

Understand Industrial Microbiology and benefit from it.

9. TEACHING AND LEARNING STRATEGIES

Providing psychological motivation to achieve scientific objectives.

Presenting modern, eloquent, and influential scientific lectures that encourage students to recognize the role of Industrial Microbiology in providing food security.

10. COURSE STRUCTURE

Week	Hours	Required Learning Outcomes	Unit / Topic	Teaching Method	Assessment Method
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October 1 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Concept of Industrial Microbiology | Lectures + illustrative presentation | Classroom performance and examinations

October 2 | 2 | Understanding the ideas of the topic and mastering its applications with examples | General idea about Industrial Microbiology | Lectures + illustrative presentation | Classroom performance and examinations

October 3 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Historical development of Industrial Microbiology | Lectures + illustrative presentation | Classroom performance and examinations

October 4 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Growth phases of Industrial Microbiology | Lectures + illustrative presentation | Classroom performance and examinations

November 1 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Nutritional requirements of microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

November 2 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Nutrient media for industrial microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

November 3 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Purification of industrial microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

November 4 | 2 | Understanding the ideas of the topic and mastering its applications with examples | First examination | Lectures + illustrative presentation | Classroom performance and examinations

December 1 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Fermentation waste products of microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

December 2 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Fermentation economics of microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

December 3 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Metabolic processes of microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

December 4 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Primary metabolic products | Lectures + illustrative presentation | Classroom performance and examinations

January 1 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Secondary metabolic products | Lectures + illustrative presentation | Classroom performance and examinations

January 2 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Genetic factors of microorganisms | Lectures + illustrative presentation | Classroom performance and examinations

January 3 | 2 | Understanding the ideas of the topic and mastering its applications with examples | Second examination | Lectures + illustrative presentation | Classroom performance and examinations

11. COURSE ASSESSMENT

The grade is distributed out of 30 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, and written examinations, reports, etc.

12. LEARNING AND TEACHING RESOURCES

Required prescribed textbook(s), if any: Industrial Microbiology

Main references: Any books related to Industrial Microbiology.

Recommended supporting books and references: Scientific journals, reports, etc. related to Industrial Microbiology.

Electronic references / websites: Any website related to Industrial Microbiology.

Course Description Form

1. Course Name:					
Biological treatment					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Thabet Mudheher Khalaf E mail: Dr.thabit@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1. To identify the types of Economic insects.				.....	
2. To familiarize students with the damage these insects cause.				.....	
3. To enable students to visit silos to observe these insects found on stored crops.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
١	٢	Grains and their importance	The importance of grains	Lectures	Exams

٢	٢	Insect damage to stored grains	Losses resulting from pests	Lectures	Exams
٥-٣	٦	Classification and identification of Economic insects	Insect diagnosis	Lectures	Exams
٦	٢	Evaluative exam			
٧	٢	Sources of Economic insect infestation	Sources of insect infestation	Lectures	Exams
٨	٢	Families of Economic insect	Economic insects	Lectures	Exams
١٥-٩	١٤	Control methods	Important pesticides in pest control	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:					
Biological treatment					
2. Course Code:					
Biology / Ph.D					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Alaa Emad Tawfeeq E mail: alaa.altikrity@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1. To identify the types of stored-product insects.				.....	
2. To familiarize students with the damage these insects cause.				.....	
3. To enable students to visit silos to observe these insects found on stored crops.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
١	٢	Grains and their importance	The importance of grains	Lectures	Exams

٢	٢	Insect damage to stored grains	Losses resulting from pests	Lectures	Exams
٥-٣	٦	Classification and identification of grain insects	Insect diagnosis	Lectures	Exams
٦	٢	Evaluative exam			
٧	٢	Sources of grain insect infestation	Sources of insect infestation	Lectures	Exams
٨	٢	Families of stored insect	stored insects	Lectures	Exams
١٥-٩	١٤	Control methods	Important pesticides in pest control	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:					
Biological treatment					
2. Course Code:					
Biology / Master's					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
18/9/2024					
5. Available Attendance Forms:					
Class Lecture + electronic lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
26 hourse					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Thabet Mudheher Khalaf E mail: Dr.thabit@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1. To identify the different types of internal organs in insects.				.....	
2. To enable students to understand and dissect these organs.				.....	
3. To enable students to identify the important internal organs in the insect's body.				.....	
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
١	٢	Embryonic development in insects	Introduction to Growth Science	Lectures	Exams

٢	٢	Digestive system and nutrition in insects	Introduction to the digestive system	Lectures	Exams
٥-٣	٦	Identifying the excretory system	Types of output devices	Lectures	Exams
٦	٢	Evaluative exam			
٧	٢	respiratory system	Insect breathing methods	Lectures	Exams
٨	٢	nervous system	Identifying the sensory organs	Lectures	Exams
١٥-٩	١٤	musculature	Understanding the types of muscles, their function, and their impact on flight.	Lectures	Exams

11. Course Evaluation					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					

Course Description Form

1. Course Name:					
Endocrine glands					
2. Course Code:					
Endocrine glands / Master					
3. Semester / Year:					
Semester /2025-2026					
4. Description Preparation Date:					
26/8/2026					
5. Available Attendance Forms:					
In-Person attendance in the classroom with an online lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30 hourse / 2 Units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Hala Hameed Majeed					
E mail: Halahameed@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1-To enable students to become familiar with endocrinology as afundamental branch of life sciences.				.....	
2-To help students understand hormones and their role in regulating vital processes in the human body, including growth, reproduction, and metabolism.					
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9. Teaching and Learning Strategies					
Strategy		Providing psychological motivation to achieve scientific goals			
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method
1	2	Understanding the topic of the lecture	Endocrine glands	My presence	Classroom performance and exams

2-3	4	Understanding the topic of the lecture	Subclinical body	My presence	Classroom performance and exams
4-5	4	Understanding the topic of the lecture	Pituitary gland	My presence	Classroom performance and exams
6-7	4	Understanding the topic of the lecture	Diseases resulting from deficiencies and excesses in hormone secretion	My presence	Classroom performance and exams
8-9	4	Understanding the topic of the lecture	Thyroid gland	My presence	Classroom performance and exams
10-11	4	Understanding the topic of the lecture	Parathyroid gland	My presence	Classroom performance and exams
12-13	4	Understanding the topic of the lecture	Adrenal gland	My presence	Classroom performance and exams
14-15	4	Understanding the topic of the lecture	The Gonads	My presence	Classroom performance and exams

11-Course Evaluation	
The distribution of marks out of 100 is as follows The monthly exam is out of 30 marks The final exam is out of 70 marks	
12-Learning and teaching Resources	
1-Endocrine glands and their hormones	Prof . Dr.Ahmed Al-magdoub Al-Qamati
2-Oxidative stress in health and disease	Dr. Luay Abd Ali Al-Hilali
3- Reproductive physiology	M.Rehab Ghaleb Mohammed, M. Fadel Abbas Radhi
4- Internet Sites	1-University websites that provide scientific information on endocrinology

Course Description Form

1. Course Name:					
Advanced animal physiology					
2. Course Code:					
Advanced animal physiology / Master					
3. Semester / Year:					
Semester /2025-2026					
4. Description Preparation Date:					
26/8/2026					
5. Available Attendance Forms:					
In-Person attendance in the classroom with an online lecture					
6. Number of Credit Hours (Total) / Number of Units (Total)					
30 hourse / 2 Units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.Hala Hameed Majeed					
E mail: Halahameed@tu.edu.iq					
8. Course Objectives					
Course Objectives					
1-To enable female Students to become familiar with advanced animal physiology as a branch of life sciences, to interpret physiological function, the integration of body systems and mechanisms for maintaining internal balance, while developing skills in conducting physiological experiments, analyzing data and applying knowledge in research and scientific fields. 2-To help female students understand hormones and their role in regulating vital processes in the human body, including growth, reproduction, and metabolism.			.....		
					
					
9. Teaching and Learning Strategies					
Strategy	Providing psychological motivation to achieve scientific goals				
10. Course Structure					
	Hours	Required Learning Outcomes			Evaluation method

1	2	Understanding the topic of the lecture	Physiology, fields of physiology, mechanisms of cell membrane function	My presence	Classroom performance and exams
2-3	4	Understanding the topic of the lecture	Neuron physiology, nerve transmission	My presence	Classroom performance and exams
4-5	4	Understanding the topic of the lecture	Physiology of the respiratory system	My presence	Classroom performance and exams
6-7	4	Understanding the topic of the lecture	Physiology of the digestive system	My presence	Classroom performance and exams
8-9	4	Understanding the topic of the lecture	Blood physiology	My presence	Classroom performance and exams
10-11	4	Understanding the topic of the lecture	Physiology of the circulatory system	My presence	Classroom performance and exams
12-13	4	Understanding the topic of the lecture	Physiology of the muscular system	My presence	Classroom performance and exams
14-15	4	Understanding the topic of the lecture	Physiology of the urinary system	My presence	Classroom performance and exams

11-Course Evaluation	
The distribution of marks out of 100 is as follows The monthly exam is out of 30 marks The final exam is out of 70 marks	
12-Learning and teaching Resources	
1-Endocrine glands and their hormones	Prof . Dr.Ahmed Al-magdoub Al-Qamati
2-Oxidative stress in health and disease	Dr. Luay Abd Ali Al-Hilali
3- Reproductive physiology	M.Rehab Ghaleb Mohammed, M. Fadel Abbas Radhi
4- Internet Sites	