Ministry of Higher Education and Scientific Research

Scientific Supervision and Scientific Evaluation

Apparatus Directorate of Quality Assurance and Academic Accreditation

Accreditation Department

Academic Program and Course Description Guide

2024

University Name: Tikrit

Faculty/Institute: College of Basic Education in Sharqat

Scientific Department: Department of Sciences

Academic or Professional Program Name: Master's degree in Life Sciences

Final Certificate Name: Bachelor's degree in Education/ General Science

Academic System: Courses

Description Preparation Date 16/09/2024

File Completion Date: 16/09/2024

Signature:

Head of Department Name:
Prof. Dr. Ali Alaje Khudhair

Date: 16/9/2024

Signature:

Scientific Associate Name:
Prof. Dr. Saad Georges Saeed

Date: ١٦/٩/٢٠٢٤

he file is checked by
Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Sarab Abdul Sattar Muhammad

Date: 16/9/

Signature:

Approval of the Dean

16/9/2024

Program vision.1
The Science Department is one of the applied science departments. Those who teach science must be equipped with pure sciences according to specific principles and rules, while keeping pace with the development of science. The department seeks to advance knowledge in the field of science to qualify them to serve society and encourage them to develop their abilities and capabilities.
Program message.2
Preparing qualified university teachers in the field of specialization and providing them with the principles of knowledge, scientific and logical thinking, scientific research skills in the sciences, and the skills necessary for future communication with society in the field of work, in addition to providing the student with a set of sciences and knowledge that complete the teacher's culture in general, including cultural requirements, educational requirements, sciences, and others.
3.Program objectives
1- Providing the Ministry of Education with specialized staff to work as university teachers. 2- Enabling students to master the principles of pure sciences. 3- Strengthening scientific concepts, and some basic terms and concepts related to it 4- Understanding the theoretical foundations on which sciences are based. 5- Providing graduates with skills and methods in teaching and learning. 6- Providing the Ministry of Education with specialized staff to work as university teachers. 7- Enabling students to master the principles of pure sciences. 8- Strengthening scientific concepts, and some basic terms and concepts related to it. 9- Understanding the theoretical foundations on which sciences are based. -10Providing graduates with skills and methods in teaching and learning.10
4. Program Accreditation
Ministry of Higher Education and Scientific Research/National Accreditation Council caep
5. Other External Influences
Science Curriculum Development Project in Iraqi Universities/Ministry of Higher Education and Scientific Research Implementation in schools for two months, field visits to school.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	*Reviews
Institutional Requirements	**13**	**26**	**19%**	fundamental
College Requirements	**12**	**10**	**29%**	fundamental
Department Requirements	**25**	**70**	**52%**	fundamental

Summer Training				
Other				

.Notes may include whether the course is basic or optional *

7. Program Description				
Credit Hours		Course Name	Course Code	Year/Level
Practical	Theoretical			
	1	Democracy and Human Rights		First/First Semester
2	3	General Biology		
2	1	Computer Science		
	3	Developmental Psychology		
2	3	General Chemistry		
	2	Logic (Mathematics)		
2	3	General Physics		First/Second Semester
	2	Arabic Language		
	2	English Language		
	3	Principles of Education		
	2	Islamic Education/Civilization		
2	2	Human Biology		
	2	Laboratory Safety and Security		
	2	Arabic Language		Second Chemistry Branch / First Semester
	2	English Language		
2	1	Computer		
2	2	Inorganic Chemistry		

	3	Counseling and Mental Health		
2	2	Volumetric Analytical Chemistry		
2	2	Physical Chemistry		
	2	Crimes of the Baath Regime		
	2	Arabic		Second Biology Branch/First Semester
	2	English		
2	1	Computer		
	3	Counseling and Mental Health		
	2	Crimes of the Baath Regime		
2	3	Microbiology		
2	2	Cytology		
	2	Virology		
	3	Educational Statistics		Second Chemistry Branch/ Second Semester
	3	Educational Psychology		
2	2	Gravimetric Analytical Chemistry		
2	2	Organic Chemistry		
2	2	Representative Element Chemistry		
	2	Differential and Integral Calculus		
	3	Educational Statistics		Second Biology Branch/
	3	Educational Psychology		

2	2	Invertebrates		Second Semester
2	2	Histology and Embryology		
	2	Biochemistry		
2	2	Plant Physiology		
	3	General Teaching Methods		Third Chemistry Branch/First Semester
	3	Educational Research Methodology		
2	2	Coordination Chemistry		
2	2	Organic Chemistry		
2	2	Industrial Chemistry		
	3	General Teaching Methods		Third Biology Branch/First Semester
	3	Educational Research Methodology		
2	2	Animal Physiology		
2	2	Parasitology		
2	3	Plant and Animal Production		
	2	Measurement and Evaluation		Third Chemistry Branch/Second Semester
	2	Science Teaching Methods		
	2	Curricula and Textbooks		
	2	Sustainable Development		
	2	Environmental and Health Education		
2	2	Soil Chemistry		
2	2	Oil and Petrochemicals		

2	2	Biochemistry		
	2	Measurement and Evaluation		Third Biology Branch/Second Semester
	2	Science Teaching Methods		
	2	Curricula and Textbooks		
	2	Sustainable Development		
	2	Environmental and Health Education		
	2	Plant classification		
2	2	Immunology		
2	2	Entomology		
	2	Professional Ethics		Fourth Chemistry Branch/First Semester
	2	Arabic Literature		
	2	Educational Administration and Supervision		
4		Practical Education (Observation)		
2	2	Organic Diagnosis		
2	2	Analysis		
	2	Clinical Chemistry		
	2	Chemistry of Natural Products		
	2	Professional Ethics		Fourth Biology Branch/First Semester
	2	Arabic Literature		
	2	Educational Administration and Supervision		
4		Practical Education		

		(Observation)		
2	2	Algae and Fungi		
2	2	Genetics		
	2	Serums and Vaccines		
	2	Endocrine Physiology		
12		Practical Education (Application)		Fourth Chemistry Branch/Second Semester
	2	Graduation Research Project		
12		Practical Education (Application)		Fourth Biology Branch/Second Semester
	2	Graduation Research Project		

8. Expected learning outcomes of the program	
Knowledge	
Learning Outcomes 1	Learning Outcome Statement 1
Skills	
Learning Outcomes 2	Learning Outcome Statement 2
Learning Outcomes 3	Learning Outcome Statement 3
Values	
Learning Outcomes 4	Learning Outcome Statement 4
Learning Outcomes 5	Learning Outcome Statement 5
9. Teaching and learning strategies	
There are many teaching and learning methods used in the Science Department, the most important of which are: (lecture - theoretical and practical, discussion and dialogue, field visits, discussion groups on specific topics, theoretical and practical student research, office activities)	
10. Evaluation methods	
- Daily and monthly oral and written exams -Daily assignments and extracurricular activitie	
11. Faculty	
Faculty members	

Academic Rank	Specialization		Requirements/Skills (if any)	Number of Faculty Members	
	general	precise		cadre	lecturer

Professor	Educational and Psychological Sciences	Psychological Counseling and Educational Guidance		1	
Professor	Agricultural Sciences	Agricultural Extension		1	
Professor	History	Modern History		1	
Assistant Professor	Organic Chemistry	Organic Chemistry		2	
Assistant Professor	Geology			1	
Assistant Professor	Biology	Environment		1	
Lecturer	Biology	Microbiology		1	
Lecturer	physics	solid physics		1	
Lecturer	Agricultural Sciences	Food Science		1	
Lecturer	Chemistry	Analytical Chemistry		2	
Lecturer	Chemistry	Physical Chemistry		1	
Lecturer	Chemistry	Organic Chemistry		1	
Lecturer	Chemistry	Industrial Chemistry		1	
Lecturer	Management and Economics	Accounting		1	
assist. Lecturer	Chemistry	Biochemistry		1	
assist. Lecturer	Agricultural Sciences	Dairy science		1	
assist. Lecturer	Agricultural Sciences	Agricultural Extension		3	
assist. Lecturer	Biology			1	
assist. Lecturer	physics			1	

assist. Lecturer	Biology	Plant/Environment and Pollution		3	
assist. Lecturer	Biology	Microbiology		1	
assist. Lecturer	Biology	Histology		2	
assist. Lecturer	Educational Sciences	Teaching Methods		1	
assist. Lecturer	Biology			1	
assist. Lecturer	Agricultural Sciences	Food Science		1	
assist. Lecturer	Chemistry	Organic Chemistry		1	
assist. Lecturer	English language			2	
assist. Lecturer	Arabic	linguistics		1	
Lecturer	Agricultural Sciences	Soil		1	

Professional Development

Orientation of New Faculty

Mandatory and developmental courses, teaching qualifications, follow-up by experienced professors and evaluation

Professional development for faculty members

Encouraging them to obtain higher degrees, write research, use modern scientific references, and keep pace with technical development.

12. Acceptance Criteria

Central

13. The most important sources of information about the program

_ The program link on the Internet, and its applications in similar universities. -

_ The training courses held by the quality and university performance departments about the program in various institutes and colleges in Iraq

-Administrative and scientific data

14. Program Development Plan

Developing skills for teaching scientific and educational courses and developing study materials and curricula

Course Description Form

1. Course Name:
General Chemistry
2. Course Code:
General Chemistry
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
7-11-2024
5. Available Attendance Forms:
In attendance (weekly)
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. Abdulwahid AbdulSattar Talouh Email: altlwhbdalwahd @gmail.com
8. Course Objectives

Course Objectives	A- Cognitive Objectives: 1- Providing the student with sufficient information to acquire expertise in the classification of chemical compounds. 2- Equipping the student with the knowledge of all branches of chemistry. 3- Providing the student with sufficient knowledge to understand the fundamentals of chemistry.

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subje name	Learning method	Evaluation method
1	2	Chemical Composition of Matte	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily, monthly exams, homework

2	2	Modern Concept of the Atom	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
3	2	Types of Chemical Bonds	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
4	2	Types of Chemical Reactions	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
5	2	Writing Chemical Formulas	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
6	2	First-month exam			
7	2	Acids, Bases, and Salts	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
8	2	Types of Solutions	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
9	2	Chemical Calculations	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
10	2	Methods of Expressing Concentration	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
11	2	Chemistry Problems	General Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
12	2	Chemistry Problems	General Chemistry	Paper lecture Display	Daily and monthly exams,

				Screen Blackboard and pen	homework
13	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

Course Description Form

1. Course Name:
Mathematics (mathematical logic)
2. Course Code:
(mathematical logic)
3. Semester / Year:
First /2024 – 2025
4. Description Preparation Date:
5 – 11 – 2024
5. Available Attendance Forms:
Attendance record
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours – 2 units/hour
7. Course administrator's name (mention all, if more than one name)
Dr. Ahmed Mohammed Khudhur Email: ahmed.m.khudhur@tu.edu.iq T.A. Abeer Ibrahim Aashwi Email: abeer.i.aashwi@tu.edu.iq
8. Course Objectives
The objectives of mathematical logic can be summarized in the following points: 1- Enhancing logical and analytical thinking ..... Developing students' ability to think critically and analytically. ..... Training them to deduce solutions in an organized and systematic manner.. 2- Studying the theoretical foundations of logic Understanding the principles and rules on which mathematical logic is based, such as the laws of inference and deduction. 3- Understanding the relationship between logic and mathematics Analyzing mathematical foundations such as set theory, algebraic structures, and model theory from a logical perspective. 4- Analyzing mathematical proof Learning how to construct and evaluate mathematical proofs using formal logic tools. Ensuring the validity of proofs and detecting errors in them. 5- Exploring different logical systems Studying classical and non-classical logic (such as fuzzy logic, intuitionistic logic, and directed logic). 6- Application in computer science and artificial intelligence Using mathematical logic in designing and analyzing algorithms. Developing artificial intelligence systems based on logical inference.

7- Stimulating scientific research and innovation
Encouraging students to be creative in developing new approaches to mathematical logic.
Finding new applications for logic in the fields of science and technology.

9. Teaching and Learning Strategies

Teaching and learning strategies in mathematical logic aim to facilitate the understanding of abstract concepts and develop students' analysis and reasoning skills. These strategies rely on combining theory and practice, and encouraging active interaction between the student and the material. The most prominent strategies are as follows:
1- Interactive lectures:
2- Problem-Based Learning:
3- Education using technology:
4- Active learning:
5- Case Studies:
6- Collaborative Learning:
7- Repetition and application method:
8- Project-Based Learning:
9- Formative Assessment:
10- Linking theoretical concepts to practical applications:
11- Simulation and educational games:
12- Self-directed and guided learning:

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
First	2	Conjunctions	Logical Expressions	presence	Daily - Monthly Tests
Second	2		Equivalent Expressions	presence	Daily - Monthly Tests
Third	2	Equivalence	Open Sentences	presence	Daily - Monthly Tests
Fourth	2	Equivalence of open sentences	Gated Sentences	presence	Daily - Monthly Tests
Fifth	2	Fencing and partial	Groups	presence	Daily - Monthly Tests
sixth	first month exam				
Seventh		Mathematical Statistics	Arithmetic median	presence	Daily - Monthly Tests
Eighth		Mathematical Statistics	Arithmetic mean	presence	Daily - Monthly Tests

Ninth		Mathematical Statistics	Mode	presence	Daily - Monthly Tests
Tenth		Equations and Bases	Simple exponential equations	presence	Daily - Monthly Tests
Eleventh		Mathematical Expression	Real functions	presence	Daily - Monthly Tests
twelfth	Second month exam				

Time is allocated for questions and answers to all inquiries during the lesson plan. There are two monthly exams and the grade is distributed as follows: 30 points for a written exam, 5 points for a daily exam with daily assignments, and 5 points for attendance.					
etc.....					
• Khan Academy: Simplified courses in mathematical logic.					
• Coursera and edX: Courses from international universities that offer specialized					

Course Description Form

1. Course Name:
Computer
2. Course Code:
Computer
3. Semester / Year:
Chapter one
4. Description Preparation Date:
2024/10/1
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
28 hours PRACTICAL+28 hours THEORETICAL
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Professor. Dr. Mohammed Abdilfattah Ali Email: mohamedgeo@tu.edu.iq
8. Course Objectives

Course Objectives	• Definition of Computer Fundamentals: Introducing basic concepts regarding computer components and operating systems, helping students understand how computers work. • Practical Applications: Enabling students to use the Windows 7 operating system and interact with essential programs, enhancing their technical skills for daily computer use. • Teaching the Basics of Microsoft Word 2010: Providing learners with the knowledge and skills necessary to create and edit documents using this program. • Providing Advanced Tools and Techniques: Enabling users to utilize the advanced features of the program, such as inserting tables, images, and watermarks, thereby enhancing the quality of the documents created. • Teaching Program Usage: The lectures aim to clarify how to effectively operate and use Microsoft PowerPoint 2010 to create professional presentations. • Developing Presentation Skills: The lectures assist in improving users' skills in designing presentations, making them more engaging and effective in conveying information. • Teaching Students to Work on the Computer and Use Excel: Equipping them to use calculators and work on office and statistical programs with ease, overcoming many issues that arise during work. • Recognizing the Importance of Computer Science for Teachers: • Teaching Students All Necessary Information Related to Computer Science: Preparing them to work in various fields of computer science

9. Teaching and Learning Strategies	
The strategy	Using the standard method (lecture delivery), organized content division, effective use of multimedia, discussion method, providing practical examples, and problem-solving approach.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic	Learning Method	Assessment Method
Week 1 November	6	Understanding the Basics of Computers	Introduction to Computers.	Paper Lectures Board and Pen Interactive Lecture	Short Quizzes at the End of Lectures

				Presentations	Homework
Week 2 November	4	Using the Windows 7	Windows 7	Paper Lectures Projector Screen Practical Workshop	Assignments Practical Lab
Week 3 November	4	Identifying Computer Components	Components of a Computer.	Interactive Lecture Dialogue and Discussion Board and Pen	Assessment Group Discussion Hands-On Lessons
Week 1 December	4	Organizing New Issues	File and Folder Management.	Paper Lectures Projector Screen Board and Pen Group Explanations	Short Quizzes at the End of Lectures Homework
Week 2 December	4	Understanding Basic Internet Networks and Their Types	Basics of Networking.	Paper Lectures Discussions	Short Quizzes at the End of Lectures Homework
Week 3 December	6	Understanding the Basic Program Interface	Introduction to Microsoft Word 2010.	Interactive Lecture and Presentations	Short Quizzes at the End of Lectures
Week 4 December	6	Ability to Access Original Texts Primarily	Formatting texts and documents, and working with tables.	Workshop and Practical Applications	Assessment of Document Importance
Week 1 January	2	First-month exam			
Week 2 January	4	Recognizing the Basic Program Interface. Creating a New Presentation	Introduction to PowerPoint 2010.	Workshop for Tool Application	Short Quizzes, Assessment of a Simple Presentatio
Week 3 January	4	Recognizing the Important Commands in These Menus.	Design, Transitions, and Animations Menu.	Workshop for Tool Application (Repeated)	Short Quizzes, Assessment of a Simple Presentatio
Week 4 January	6	Understanding the Basics of Excel.	Introduction to Excel.	Lectures and Exercises	Short Quizzes, Homework
Week 1 February	4	The Ability to Use Basic Functions.	Countries in Excel.	Project Work Group Projects	Assessment of Electronic Products
Week 2	2	Second month exam			

February		

11. Course Evaluation
Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10 • (Theoretical pursuit of 40) Pursuit of 40 • Final exam of 60 • Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	1- الخضرعلي الخضر بحاث، اساسيات الحاسوب، 2016
Primary references (sources)	Microsoft Corporation. (2010). Documentation and user guides for Excel 2010.
Recommended supporting books and references (scientific journals, reports...)	Excel 2010 for Dummies Greg Harvey. (2010). Excel 2010 For Dummies. Wiley Publishing .....
Electronic References, Websites	Microsoft Office Support: support.microsoft.com ..... Excel Easy: exceleasy.com

Course Description Form

1. Course Name:
The psychology
2. Course Code:
(**The psychology**(t heoretical)
3. Semester / Year:
Chapter one\ **Course**

4. Description Preparation Date:
2025/1/7
5. Available Attendance Forms:
In attendance (weekly)
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: m.m saad ahmed khalaf Email: saad.khalaf21@tu.edu.iq
8. Course Objectives

Course Objectives	• altaearuf ealaa madat eilm alnafs aleami lima tahmiluh fi tayaatiha min jawanib wa'usus eilmiat wanafsiat muhimat lilmutaealimin aladhin yusbihun fi almustaqbal alqarib muealimina •. altaearuf ealaa alahimiat alkabirat limadat eilm alnafs aleami bialnisbat lilmuealim fi taeamulih mae altalamidh almadat aldirasiat fi almarhalat alaibtidayiya • Empowering the student in how to deal with the curriculum and methods of communicating it to the students eare in a smooth and scientific manner •the helps the student to identify the personal differences of students in terms of strengths or weaknesses of the personality.

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Second week of month novemb er	2	The philosophical stage the physiogical stage	A brief overview of **psychology**	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

The third week of mnove month novemb er	2	Scientific study of stimulus response behavior	Definition of **psychology** and iits goals	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
fourth week of month novemb er	2	Theoretical fildes and applied fields	Fieleds of **psychology**	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The first week of the month of decemb er	2	Psychiatry and psychosomatic medicine	Topic enriched by ibn sina	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The second week of the month of decemb er	2	Need is the driving force	Motivation its benefits and importance	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The third week of the month of decemb er	2	The basic aspects of emotion the emotional side and the physical	Emotions and its aspects	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The fourth week of the month of decemb	2	First-month exam			

er					
The first week of the month of january	2	Sensation and types of attention	The feeling	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The scend week of the month of january	2	Definition of perception laws of perception	Perception	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The third week of the month of january	2	The importance of memory stages of the memory process	The memory	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The fourth week of the month of january	2	Distortion interence suppression	forgetting	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The first week of the month of february	2	Ctors affecting personality charateristics	Personal styles	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The secnd week of the month of	2	Second month exam			

february		

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Attendance participation duties of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Imam musafa and others 1990 psychological evalution ministry of higher education and scientific research university of baghdad
Primary references (sources)	Book **The psychology**
Recommended supporting books and references (scientific journals, reports...)	Rajeh ahmed ezzat 1972 fundamentals of psychology sixth edition national printing and publishing house Alexandria egypt

Course Description Form

1. Course Name:
Human rights and democracy .....
2. Course Code:
Human rights and democracy
3. Semester / Year:
First Course/2024-2025
4. Description Preparation Date
9/ 11/ 2024
5. Available Attendance Forms:
In-person class lectures
6. Number of Credit Hours (Total) / Number of Units (Total)

Number of hours (total): 24 hours. Number of units: 2

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

Name: Faris Mahmoud faraj

Email: faris.be @tu.edu.iq

8. Course Objectives

Course Objectives	

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

	Hours	**Required Learning Outcomes**			**Evaluation method**
October1	2		Introducing human rights	lecture	Class performance
October2	2		Characteristics of human rights	lecture	Class performance
October3	2		Human rights in Islamic law	lecture	Class performance
October4	2		Human rights classifications	lecture	Class performance
November 1	2		Collective human rights	lecture	Class performance

November 2	2		Human rights and corruption	lecture	Class performance
November 3	2		Types of governments	lecture	Class performance
November 4	2		Royal and republican government	lecture	Class performance
December 1	2		Democratic government	lecture	Class performance
December 2	2		The emergence of democracy	lecture	Class performance
December 3	2		Types of democracy	lecture	Class performance
December 4	2		The election	lecture	Class performance

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

CourseDescriptionForm

1. CourseName:	
General Biology	
2. CourseCode:	
General Biology (Theoretical)	
3. Semester/ Year:	
First Semester / Course-Based System	
4. DescriptionPreparationDate:	
..... 9/9 2024	
5.AvailableAttendanceForms:	
In-person (Weekly)	
6.NumberofCreditHours(Total)/NumberofUnits (Total)	
30 hours	
7.Courseadministrator'sname(mentionall,ifmorethanonename)	
Name: Mostafa Qahtan Mostafa	
8. Course Objectives	
Course Objectives	Help students understand biology and cell strictures , its definition, and the most important biological processes. - Prepare specialized scientific personnel in the field of life sciences to enhance the educational reality in the country.

	- Provide the Ministry of Education with qualified and specialized personnel in life sciences.

9. Teaching and Learning Strategies

The strategy	Use of electronic visual aids. - Employ discussion methods during lectures between the professor and students. - Assign students research and reports. - Provide students with assignments related to the course content.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	Introduction	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
2	2	The relationship of life sciences to other sciences	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
3	2	Attributes of life	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
4	2	Organic compounds in living organisms	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
5	2	Nucleic acids	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
6	2	Classification of living organisms	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
8	2				Vascular System
9	2	Hormonal coordination	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
10	2	Endocrine glands	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
11	2	The cell and its components	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
12	2	Animal tissues	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

1	2	plant tissues	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

11. Course Evaluation	
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Attendance participation duties of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	Animal Physiology – Functions of the Animal Body (John Cleland) - Animal Physiology (William Benjamin) - Animal Physiology (Omar Abdul-Majeed Mohammed)
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	Specialized websites related to the topics (Google search).

Course Description Form

1. Course Name:
Laboratory Safety and Security
2. Course Code:
Laboratory Safety and Security
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
19-1-2025
5. Available Attendance Forms:
In attendance (weekly)
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. Abdulwahid AbdulSattar Talouh Email: altlwhbdalwahd @gmail.com
8. Course Objectives

Course Objectives	A- Cognitive Objectives: 1- The student should become familiar with the laboratory environment. ..... 2- The student should classify hazardous and non-hazardous substances. ..... 3- The student should differentiate between the laboratory environment and the university environment. 4- The student should acquire knowledge of first aid procedures. 5- The student should learn how to properly store chemical substances

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	Introduction to	Safety Lab	Paper lecture	Daily, monthly

		Laboratory Safety		Display Screen Blackboard and pen	exams, homework
2	2	Laboratory Safety	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
3	2	Laboratory Setup	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
4	2	Chemical Storage	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
5	2	Lab Preparation	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
6	2	First-month exam			
7	2	Warning Signs in the Laboratory	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
8	2	Personal Protective Equipment	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
9	2	Storage of Flammable and Toxic Substances	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
10	2	Material Safety Data Sheets (MSDS)	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
11	2	Fire Extinguishment	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

12	2	Treating Poisoning and Choking	Safety Lab	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
13	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

Course Description Form

1. Course Name:
General Physics
2. Course Code:
General Physics Theoretical and Practical
3. Semester / Year:
Second chapter /2024 - 2025
4. Description Preparation Date:
18 – 1 – 2025
5. Available Attendance Forms:
Attendance record
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours ....
7. Course administrator's name (mention all, if more than one name)
Teacher.Dr. Ahmed Mohammed Khudhur Email: ahmed.m.khudhur@tu.edu.iq Teacher. Assistant . Abeer Ibrahim Aashwi Email: abeer.i.aashwi@tu.edu.iq
8. Course Objectives

Course objective	The objectives of the General Physics Program are to achieve academic excellence and enhance scientific understanding among students. The main objectives include: Teaching the basics of physics: Providing a comprehensive understanding of the basic principles of physics, such as mechanics, electricity and magnetism, thermodynamics, and modern physics. Developing analytical and problem-solving skills: Enhancing critical thinking and the ability to analyze physical problems and find innovative solutions using precise mathematical and scientific methods. Enhancing experiential learning: Enabling students to conduct scientific experiments and analyze data using modern

	technologies to deepen their understanding of physical concepts. Linking theory to application: Teaching students how to apply physical laws and principles to practical and real-life problems, which enhances the realistic understanding of physics. Supporting other disciplines: Providing a strong scientific foundation that helps students succeed in other disciplines such as engineering, medicine, technology, and computer science. Preparing students for advanced studies: Paving the way for students who aspire to pursue graduate studies or scientific research in the fields of physics or related disciplines. Enhancing teamwork and communication skills: Encouraging students to work within research teams and developing effective communication skills to present scientific ideas clearly and accurately. Contributing to community service: Preparing scientific cadres capable of participating in developing technology and solving societal issues such as energy, environment, and communications. Encouraging innovation and creative thinking: Motivating students to think creatively to develop new solutions to scientific and technological challenges

9. Teaching and Learning Strategies

Strategies	Teaching and learning strategies for general physics aim to achieve learning outcomes efficiently through various means and methods that meet students' needs and enhance their understanding of physical concepts.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
First	3	Vector quantities	Physical Quantities	presence	Daily - Monthly Tests
Second	3	Scalar quantities	Vectors	presence	Daily - Monthly Tests
Third	3	Addition and subtraction of vectors	Matters	presence	Daily - Monthly Tests
Fourth	3	Types of materials	Electric Field	presence	Daily - Monthly Tests
Fifth	3	Electric fields	Electric Potential	presence	Daily - Monthly Tests
Sixth	3	Reflection	Reflection	presence	Daily - Monthly
Seventh		Experiment of maximum power	Mirrors	presence	Daily - Monthly Tests
Eighth	first month exam				
Ninth	3	Terminology	Heat	presence	Daily - Monthly Tests
Tenth	3	Basic of mirrors	Energy	presence	Daily - Monthly

					Tests
Eleventh	3	Thermal properties	Renewable Energy	presence	Daily - Monthly Tests
twelfth	Second month exam				

11. Course Evaluation
Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10 • (Theoretical pursuit of 40) Pursuit of 40 • Final exam of 60 • Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	• Local references: books that are used in local academic institutions.
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	• Basic books: such as "Physics for Scientists and Engineers" or "Fundamentals of Physics" as primary sources.
Electronic References, Websites	**https://www.uoanbar.edu.iq/BasicEducation** **https://www.researchgate.net/profile/Arbab**

Course Description Form

.....

1. Course Name:
The psychology .....
2. Course Code:
(**The psychology**(t heoretical)
3. Semester / Year:
Chapter one\ **Course**
4. Description Preparation Date:
2025/1/10
5. Available Attendance Forms:
In attendance (weekly)
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: saad ahmed khalaf

Email: saad.khalaf21@tu.edu.iq

8. Course Objectives

Course Objectives	• altaearuf ealaa madat eilm alnafs aleami lima tahmiluh fi tayaatiha min jawanib wa'usus eilmiat wanafsiat muhimat lilmutaealimin aladhin yusbihun fi almustaqbal alqarib muealimina •. altaearuf ealaa alahimiat alkabirat limadat eilm alnafs aleami bialnisbat lilmuealim fi taeamulih mae altalamidh almadat aldirasiat fi almarhalat alaibtidayiya • Empowering the student in how to deal with the curriculum and methods of communicating it to the students eare in a smooth and scientific manner •the helps the student to identify the personal differences of students in terms of strengths or weaknesses of the personality.

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Second week of month novemb er	2	The philosophical stage the physiogical stage	A brief overview of **psychology**	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The third week of mnove month novemb er	2	Scientific study of stimulus response behavior	Definition of **psychology** and iits goals	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

fourth week of month novemb er	2	Theoretical fildes and applied fields	Fieleds of **psychology**	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The first week of the month of decemb er	2	Psychiatry and psychosomatic medicine	Topic enriched by ibn sina	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The second week of the month of decemb er	2	Need is the driving force	Motivation its benefits and importance	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The third week of the month of decemb er	2	The basic aspects of emotion the emotional side and the physical	Emotions and its aspects	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The fourth week of the month of decemb er	2	First-month exam			
The first week of the month of	2	Sensation and types of attention	The feeling	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

january					
The scend week of the month of january	2	Definition of perception laws of perception	Perception	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The third week of the month of january	2	The importance of memory stages of the memory process	The memory	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The fourth week of the month of january	2	Distortion interence suppression	forgetting	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The first week of the month of february	2	Ctors affecting personality charateristics	Personal styles	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The secnd week of the month of february	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Attendance participation duties of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Imam musafa and others 1990 psychological evalution ministry of higher education and scientific research university of baghdad
Primary references (sources)	Book **The psychology**
Recommended supporting books and references (scientific journals, reports...)	Rajeh ahmed ezzat 1972 fundamentals of psychology sixth edition national printing and publishing house Alexandria egypt

Course Description Form

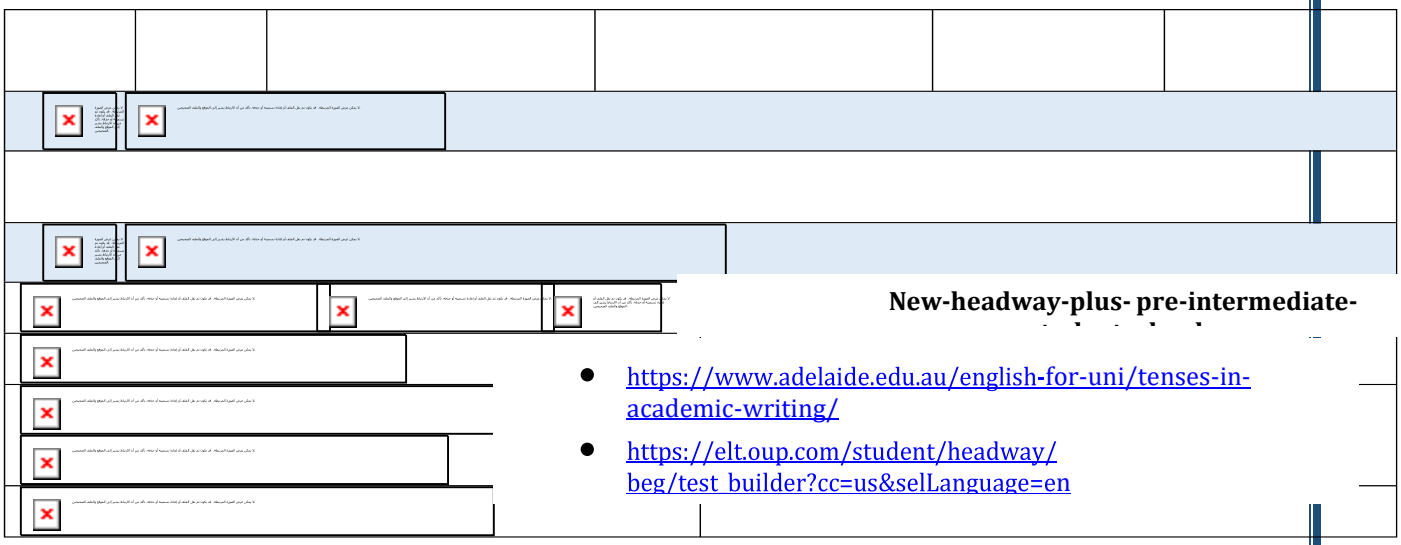
1. Course Name:
English language .....
2. Course Code:
3. Semester / Year:
Annually
4. Description Preparation Date:
18-01-2025
5. Available Attendance Forms:
Face to Face (compulsory)
6. Number of Credit Hours (Total) / Number of Units (Total)
24

7. Course administrator's name (mention all, if more than one name)	
Name: Atheer Jasim Mohammed, Msc. Email: atherjandal@tu.edu.iq	
8. Course Objectives	
Course Objectives	**The main aim of the course is to encourage the students to use English, learn new vocabularies, and learn more about English grammar.**
9. Teaching and Learning Strategies	
Strategy	Using modern aspect to make students more attention for English learning.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2		**Unit 1/ Introduction Hello, 2 1 Vocabulary, Everyday English**	**Lecture**	*Quiz & activity *Daily assessment
2			**Unit 2 /Your World Countries, 2 2 Listening, Questions, Adjectives**	**Lecture**	*Quiz & activity *Daily assessment
3			**Reading, Listening, Everyday 2 3 English, Don't forget**	**Lecture**	*Quiz & activity *Daily assessment
4			**Unit 3/ All about you 2 4 Jobs, Questions and Negatives, Negatives and Questions, Listening Questions, Listening**	**Lecture**	*Quiz & activity *Daily assessment
5		Exam	**-**	-	-
6			**Unit 4 / Family and Friends 2 5**	**Lecture**	*Quiz & activity *Daily assessment

			Possessives, Vocabulary, has/ have, Listening		
7			**Reading, Pronunciation, 2 6 Everyday English**	**Lecture**	*Quiz & activity *Daily assessment
8			**Unit 5 / The way I Live, 2 8 Sports / food/ drink, Things I like, Present simple**	**Lecture**	*Quiz & activity *Daily assessment
9			**Listening, Vocabulary, Everyday 2 9 English, Don]t forget**	**Lecture**	*Quiz & activity *Daily assessment
10		Exam	**-**	-	-
11			**Unit 6 / Every Day 2 10 The Time, Present Simple- he/ she/ it Do/ does/ am/ is/ are**	**Lecture**	*Quiz & activity *Daily assessment
12			**Unit 7 / My Favorites 2 12 Question (Why? Because)**	**Lecture**	*Quiz & activity *Daily assessment
13			**Present Continuous Tense**		*Quiz & activity *Daily assessment
14			**Present Perfect Tense**		*Quiz & activity *Daily assessment
		Exam	**-**	-	-



New-headway-plus- pre-intermediate-

- https://www.adelaide.edu.au/english-for-uni/tenses-in-academic-writing/
- https://elt.oup.com/student/headway/beg/test_builder?cc=us&selLanguage=en

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.

Course Description Form .....

1. Course Name: .....
Human Biology (Theoretical)
2. Course Code:
3. Semester / Year:
Second Semester, Courses System
4. Description Preparation Date:
07/1/2025
5. Available Attendance Forms:
Classroom Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)

28 hours

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

Name: Dr. Abdullah Ghanim Qaddoori
Email: abdullah.qaddoori@tu.edu.iq

8. Course Objectives

The Human Biology course aims to provide a comprehensive and integrated understanding of the basics of biology related to the human body, including the functional and physiological structure of the various body systems. The course focuses on the study of the vital processes that support human life, with an emphasis on the relationship between structure and function.

After successfully completing the course, the student should be able to:

1. Enhance his understanding of the basic biological structures and functions of the human body.
2. Analyze the relationship between the various organs and systems in the body.
3. Provide a scientific basis for understanding public health and disease.

9. Teaching and Learning Strategies

Lecture and discussion method, followed by interactive questions and allowing for questions and discussion. In addition to several other teaching methods used such as presentations, scientific reports, and laboratory experiments.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	**2**	Definition of human biology and its importance.	Introduction	Whiteboard, Projector	Exams & reports

2	**2**	An overview of human body systems and their interrelations.	Major Body Systems	Whiteboard, Projector	Exams & reports
3	**2**	Structure, function, and mechanisms of nerve signal transmission.	Nervous System	Whiteboard, Projector	Exams & reports
4	**2**	The heart, blood vessels, and mechanisms of blood transport.	Circulatory System	Whiteboard, Projector	Exams & reports
5	**2**	Mechanisms of breathing and gas exchange.	Respiratory System	Whiteboard, Projector	Exams & reports
6	**2**	Digestion and nutrient absorption.	Digestive System	Whiteboard, Projector	Exams & reports
7	**2**	Movement and structural support.	Musculoskeletal System	Whiteboard, Projector	Exams & reports
8	**2**	Waste elimination and fluid regulation.	Urinary System	Whiteboard, Projector	Exams & reports
9	**2**	Reproduction and mechanisms of heredity.	Reproductive System	Whiteboard, Projector	Exams & reports
10	**2**	Types of human tissues and their roles in the body.	Tissues and Cells	Whiteboard, Projector	Exams & reports
11	**2**	Interaction between different systems to maintain stability.	Homeostasis	Whiteboard, Projector	Exams & reports
12	**2**	Mechanisms for maintaining internal environmental equilibrium.	Internal Balance	Whiteboard, Projector	Exams & reports
13	**2**	Introduction to common diseases and their impact on body functions.	Health and Diseases	Whiteboard, Projector	Exams & reports

14	**2**	The role of the immune system in defending the body.	Health and Diseases	Whiteboard, Projector	Exams & reports

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: • 30 marks for the first midterm exam. • 30 marks for the second midterm exam. • The average of the two midterm exam marks. • 10 marks for daily tests, attendance, and participation. • 40 marks for the student's annual effort. • 60 marks for the final exam. • The final grade for the student including the annual effort is 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Not applicable
Primary references (sources)	"Introduction to Human Biology" by Dr. Ayesh Zaytoun Mahmoud.
Recommended supporting books and references (scientific journals, reports...)	"Human Biology" by Sherine Rabi
Electronic references, websites:	Google search engine

Course Description Form

1. Course Name:
Chemistry Volumetric analysis
2. Course Code:
Chemistry Volumetric analysis
3. Semester / Year:
Chapter one 2024_2025
4. Description Preparation Date:
2024/9/9
5. Available Attendance Forms:
In attendance (weekly)
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. Hassam Salah Dahkil Email: hassam.dakhil21@tu.edu.qi
8. Course Objectives

Course Objectives	• Introducing the importance of Chemistry Volumetric analysis and the relationship of this science to other sciences. • Developing students' skills in analytical Chemistry sciences. • Learn about voluntary corrocation • Study the methods of expressing restrictions

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 3	2	Introduction to	Volume analysis	Paper lecture	Daily and

September		analytical Chemistry		Display Screen Blackboard and pen	monthly exams, homework
Week 4 September	2	Neutralization Titrations	Titrations Volume	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 October	2	Oxidating and reduction reaction	Concepts relating to interactions, oxidation and reduction and calculation of the numbe	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 October	2	Methods of expressing conquests	Calculate the rest solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 October	2	Methods of expressing conquests	Calculate the rest solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 October	2	Chemical accounts	Standard solutions and methods of preparation of solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 November	2	First-month exam			
Week 2 November	2	Calculate the pH for the acids and bases	Calculate the pH for solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 November	2	Calculate the pH of the salts	Calculate the pH for solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

Week 4 November	2	Calculate the pH for commonon	Calculate the pH for solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 December	2	Calculate the pH for organized solutions	Calculate the pH for solutions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 December	2	Titrations precipitation	Concepts relating to sedimentation interactions-dissolve-applications	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 December	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 20 • (Theoretical pursuit of 40) Pursuit of 40 • Final exam of 60 • Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Theoretical basics of quantitative gravimetric and volumetric analysis of inorganic analytical chemistry, Prof. Dr. Hadi Kazem Awad
Primary references (sources)	Dr.. Moayad Qasim Al-Abaiji, Dr. Thabet Saeed Al-Ghabsheh, “Foundations of Analytical Chemistry,” University of Mosul, 1986
Recommended supporting books and	Dr.. Moayad Qasim Al-Abaiji, Dr. Thabet

references (scientific journals, reports...)	Saeed Al-Ghabsheh, “Foundations of Analytical Chemistry,” University of Mosul, 1986

Course description form

1- Course Name	
Physical Chemistry	
2- Course Code	
The second phase	
3- Season or year	
2025-2024 First semester	
4- Date this description was prepared	
2024/9/12	
5- Available attendance forms	
In person (weekly)	
6. Number of study hours (total) / number of units (total)	
30	
7. Name of the course administrator (if more than one name is mentioned)	
Name: Doctor teacher Manaf Khalaf Mahmoud emil: munah.mahmood21@tu.edu.qi	
8. Course objectives	
Objectives of the study subject	• Developing academic education at the university and college in accordance with quality standards in higher education, which enables universities to produce outputs that are able to be produced in the labor market. • Clarifying the basic concepts of thermodynamic and electrical chemistry, clarifying the theories and their

	development, laws and equations, and how to derive them. • Developing students' skills in using the computer to process results and using it to draw graphs to obtain precise and accurate results for calculating thermodynamic functions. • Explaining the importance of physical chemistry in monitoring the progress of reactions, calculating thermodynamic functions, calculating activation energy, and the importance of the effect of temperature on this. • Explaining the most important applications of thermodynamic physical chemistry and its importance in the practical field. • Knowledge and understanding of physical phenomena in thermodynamics, potential, Clapeyron's equation, Henry's law, Raoult's law, phase rule, and chemical equilibria.

9. Teaching and learning strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method

10. Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
September 1	2	General properties of gases	Gases and factors affecting them	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
September 2	2	Gas laws	Gas laws and standard conditions	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
October	2	Ideal gas law	Derivation of the ideal gas law and	Paper lectures Display	Daily exams

3			application of some examples	Screen Blackboard and pen	monthly, Homework
October 4	2	Introduction to thermodynamics	Phenomena explained by thermodynamics	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
October 5	2	Some terms of thermodynamics	Systems, their types, temperature, and state functions	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
October 6	**2**	First month exam			
November 7	2	Thermochemistry	Knowing the energy of bonds and how to calculate it	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
November 8	2	Zero law of thermodynamics	Concept and explanation of the zero law of thermodynamics	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
November 9	2	First law of thermodynamics	Knowing the first law of thermodynamics and studying its processes	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
November	2	First law of	Applications to the processes of	Paper lectures Display	Daily exams

10		thermodynamics	the first law of thermodynamics	Screen Blackboard and pen	monthly, Homework
December 11	**2**	Second month exam			
December 12	2	Joule's experiment and Joule-Thomson's experiment	Illustration and application of experiments	Paper lectures Display Screen Blackboard and pen	Questions
December 13	2	Second law of thermodynamics	Knowing entropy	Paper lectures Display Screen Blackboard and pen	Questions
December 14	2	Second law of thermodynamics	Applications of the second law of thermodynamics	Paper lectures Display Screen Blackboard and pen	Homework

11. Course evaluation	
Students are evaluated during the semester according to the following principles 1- The first month exam is 12.5, the second month exam is 12.5, a daily exam, attendance and participation is 5, and practical is 10. 2- Striving from 40 3- Final exam of 60 4- Final score out of 100	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	Principles of Thermodynamics (Professor Dr. .Falah Hassan Hussein 2012) .Physical Chemistry P.W. Atkins
Main references (sources)	Thermodynamics (Dr. Aqeel Salloum 2010)

Recommended supporting books and references (scientific journals, reports...)	
Electronic references, Internet sites	

Course Description Form

1. **Course Name:**
Inorganic Chemistry (Theoretical)
2. **Course Code:**
Second Stage
3. **Semester/Year:**
Course System - First Course
4. **Date of Preparation of this Description:**
2024-2025
5. **Available Attendance Forms:**
In-person classroom lectures
6. **Number of Study Hours (Total) / Number of Units (Total):**
24 hours
7. **Name of the Course Coordinator** (If more than one name, mention them):
Name: Asst. Prof. Safaa Hussein Mohammed Email: safaa.mohamed@tu.edu.iq
8. **Course Objectives:**

Course Objectives	**Objectives of the Course Material:** • **Atomic Structure and Basic Interactions:** Understanding the basic structure of the atom from components such as protons, neutrons, and

	electrons, and how these particles were discovered and their properties, such as charge, were determined. This includes understanding Rutherford's theory and the distribution of electrons in shells and how this affects the stability of the atom. • **Chemical Bonds and Molecule Formation:** Understanding how atoms bond together to form molecules through different types of chemical bonds (such as ionic and covalent). This includes understanding the overlap of atomic orbitals and their effect on the geometric shape of molecules, and the concept of hybridization and its different types. • **Describing Electron Behavior in the Atom:** Understanding how to describe the behavior of electrons in the atom using quantum numbers, and how these numbers are used to determine the properties of electrons and their distribution in the atom. • **Nuclear Chemistry and Radioactivity:** Understanding the phenomena related to the atomic nucleus, such as radioactivity and its types (such as alpha, beta, and gamma emissions), and the processes of radioactive decay, fission, and nuclear fusion. This includes understanding the types of nuclear reactors and their uses. • **Practical Applications of Radioactive Isotopes:** Understanding how radioactive isotopes are used in various fields such as medicine, industry, and scientific research, and the benefits and challenges associated with these uses..
9. Teaching and Learning Strategies	
Strategy	Using standard methods (lectures) / discussion method / problem-solving method

10.. Course Structure:					
Week	Hours	Required Learning Outcomes	Unit/Topic Name	Learning Method	Assessment Method
First Week Oct	2	Inorganic Chemistry	Concept of the Atom and its Components	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Second Week Oct	2	Inorganic Chemistry	Discovery of the Proton and Electron and Determining the Electron Charge	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Third Week Oct	2	Inorganic Chemistry	Rutherford's Theory – Filling Electron Shells and their Relationship to Atomic Stability	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Fourth Week Oct	2	Inorganic Chemistry	Chemical Bonding – Types of Bonds	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
First Week Nov	2	Inorganic Chemistry	Quantum Numbers – Examples	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Second Week Nov	2	Inorganic Chemistry	Overlap of Atomic Orbitals and the Geometric Shape of Molecules	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Third Week Nov	2	First Semester Exam			
Fourth Week Nov	2	Inorganic Chemistry	Hybridization – Types – Examples	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
First Week Dec	2	Inorganic Chemistry	Nuclear Chemistry – Radioactivity and Nuclear Reactions – Examples	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Second Week	2	Inorganic Chemistry	Types of Radiation / Radioactive Decay –	Paper lectures, projector,	Daily, monthly exams,

Dec			Emission of Radiation	whiteboard and pen	homework
Third Week Dec	2	Inorganic Chemistry	Radioactive Decay – Emission of Radiation / Nuclear Fission	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Fourth Week Dec	2	Inorganic Chemistry	Nuclear Reactors – Types – Uses	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
First Week Jan	2	Inorganic Chemistry	Nuclear Fusion	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework
Second Week Jan	2	Inorganic Chemistry	Uses of Radioactive Isotopes	Paper lectures, projector, whiteboard and pen	Daily, monthly exams, homework

11. Course Evaluation	
Students are evaluated during the semester according to the following criteria: First month exam out of 20/ Second month exam out of 20/ Daily exam and attendance and participation out of 20)Theoretical effort out of 30 + practical effort out of 10) effort out of 40 Final exam out of 60 Final grade out of 100	
12. Learning and Teaching Resources:	**Representative Element Chemistry Resources:**
Inorganic Chemistry Resources:	1- Comparative and Structural Inorganic Chemistry, translated by Dr. Mahdi Naji Al-Zakoum
Foundations of Inorganic Chemistry / Author: Prof. Dr. Mohammed Magdy Wassel	2- Chemistry of Representative Elements, Dr. Mahdi Naji Al-Zakoum and Dr. Kadhim Al-Obaidi 3- Basic Inorganic Chemistry (Part 1), translated by Dr. Mahdi Naji Al-Zakoum

Course Description Form

1. Course Name:
Cytology
2. Course Code:

3. Semester / Year:
First Semester, Courses System
4. Description Preparation Date:
September 2024
5. Available Attendance Forms:
Classroom Lectures
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. Muhanad Hamed Salih Email: muhanad.h.salih@tu.edu.iq
8. Course Objectives
□ The components of the cell and the differences between cell types. □ Prokaryotic cells and eukaryotic cells. □ Methods of cell division. □ Formation of sperm and egg cells
9. Teaching and Learning Strategies
Using the standard method (lecturing) / Discussion method / Problem-solving method.
10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method

1	2	Introduction to the cell and a historical overview, the relationship of cell biology to other sciences.	Cytology	Display screen, whiteboard, and pen.	Exams & reports
2	2	Cell theory, cell shape and size, levels of organization in living organisms.	Cytology	Display screen, whiteboard, and pen.	Exams & reports
3	2	Prokaryotic cells and eukaryotic cells	Cytology	Display screen, whiteboard, and pen.	Exams & reports
4	2	Plant cells, animal cells, and the cell membrane	Cytology	Display screen, whiteboard, and pen.	Exams & reports
5	2	An introduction to the cell and a historical overview, and the relationship of cell biology to other sciences	Cytology	Display screen, whiteboard, and pen.	Exams & reports
6	2	First Month Exam			
7	2	Cytoplasm, organelles, and membranous structures.	Cytology	Display screen, whiteboard, and pen.	Exams & reports
8	2	Mitochondria, ribosomes, lysosomes, and microbodies.	Cytology	Display screen, whiteboard,	Exams & reports

				and pen.	
9	2	Organic and inorganic components within the cell.	Cytology	Display screen, whiteboard, and pen.	Exams & reports
10	2	Plasma membrane, endoplasmic reticulum, Golgi apparatus	Cytology	Display screen, whiteboard, and pen.	Exams & reports
11	2	Chloroplasts, vacuoles, nucleus, chromosomes.	Cytology	Display screen, whiteboard, and pen.	Exams & reports
12	2	Cell division, types of division, stages of sperm and egg formation.	Cytology	Display screen, whiteboard, and pen.	Exams & reports
13	2	Second Month Exam			

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: • 30 marks for the first midterm exam. • 30 marks for the second midterm exam. • The average of the two midterm exam marks. • 10 marks for daily tests, attendance, and participation. • 40 marks for the student's annual effort. • 60 marks for the final exam. • The final grade for the student including the annual effort is 100

12. Learning and teaching resources	
Cytology	Not applicable
Becker ,W.M.,L. J. Kleinsmith , J. Hardin. 2006. The Word of the Cell , Sixth edition.	Main references (sources).
Gerald Karp.2013. Cell Biology , 7th-Edition by .ISBN:978-118.	Recommended supporting books and references (scientific journals, reports, etc.).Edition
ttp://biology.about.com/od/apforstudents/tp/tpapbiobooks.htm http://www.biology-online.org	Electronic references, websites

Course Description Form

1. Course Name:
Practical cell science
2. Course Code:
3. Semester / Year:
Course system/first semester
4. Description Preparation Date:

2024/9/12

5. Available Attendance Forms:

In attendance (weekly)

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: Assistant teacher Abdulmunem K. Abdullah

Email: Abdulmu.k019@tu.edu.iq

8. Course Objectives

Course Objectives	1. Identify living cells and their basic components. 2. Identify the devices by which cells can be studied. 3. Identify histological techniques and the method of using histological stains. 4. Identify some of the basic parts of the nucleus and wall through a practical experiment. 5. Identify non-living components of individual crystals and needles through practical experiments. 6. Identify guard cells and stomata through a practical experiment.

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 3 September	2	The cell and its components	Introduction to cell science, types of cells, their components	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 September	2	microscope	Microscope, its components, how to use and maintain it.	Paper lecture Display Screen	Daily and monthly exams,

				Blackboard and pen	homework
Week 1 October	2	Tissue preparations, preservation and fixation methods	Purpose of the experiment, theory of the experiment To identify methods of preparation and preservation of different types of tissues	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 October	2	View the cell and some of its components	An experiment using onion plants to observe the cell wall, nucleus, and vacuole.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 October	2	Blood smear method	The purpose of the experiment is to identify cell shapes using Lechman stain.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 October	2	First-month exam			
Week 1 November	2	Single crystal viewing experience	Introduction, the purpose of the experiment is to identify non-living components using onion plants.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 November	2	Single crystal viewing experience	Introduction, the purpose of the experiment is to identify non-living components using onion plants.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 November	2	Single crystal viewing experience	Introduction, the purpose of the experiment is to identify non-living components using onion plants.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

Week 4 November	2	Single crystal viewing experience	Introduction, the purpose of the experiment is to identify non-living components using onion plants.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 December	2	Single crystal viewing experience	Introduction, the purpose of the experiment is to identify non-living components using onion plants.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 December	2	Second month exam			
Week 3 December	2	Overview, Practical cell science	Practical cell science	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - Students are evaluated during the semester according to the following principles: - First month exam from 10 / Second month exam from 10 / Daily exam, attendance and participation from 10 divided by 3 - (Practical pursuit of 10 + theoretical pursuit of 30) Striving of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Practical book in plant anatomy/Faculty of Science/Islamic University/Gaza
Primary references (sources)	Histology Dr. Kawakib Abdul Qadir University of Baghdad

Recommended supporting books and references (scientific journals, reports...)	Specialized topic websites from google search

Course Description Form

1. Course Name:
Microbiology (Theoretical)
2. Course Code:
3. Semester / Year:
First Semester, Courses System
4. Description Preparation Date:
9/09/2024
5. Available Attendance Forms:
Classroom Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
28 hours
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Abdullah Ghanim Qaddoori Email: abdullah.qaddoori@tu.edu.iq ....
8. Course Objectives
The theoretical microbiology course aims to describe the diversity of microorganisms, the structure and function of bacterial cells, microbial growth, and metabolism. It also covers methods of controlling microbial growth through physical and chemical means. The course aims to describe the basic genetic systems of bacteria, bacteriophages, and plasmids. Students will learn about the role of microorganisms in food production and preservation, their ability to cause environmental infections, and how to use beneficial microorganisms in agricultural, industrial, and environmental applications After successfully completing the course, the student should be able to:

1. Identify the main taxonomic groups when classifying microorganisms (bacteria, fungi, parasites, and viruses).
2. Compare methods of controlling the growth of microorganisms by physical and chemical means.
3. Explain the different phases in the bacterial growth curve.
4. Understand glucose metabolism in bacteria under aerobic and anaerobic conditions.
5. Describe the basic principle in molecular microbiology related to the transfer of genetic information.
6. Know the factors affecting the growth of microorganisms.
7. Show the main differences between prokaryotic and eukaryotic microorganisms.
8. Give examples of beneficial microorganisms and their applications, as well as harmful ones and the problems they cause.
9. Distinguish types of microorganisms through their morphological and structural characteristics and their nutrition methods.
10. Draw the structural composition of bacterial cells and eukaryotic microorganisms, including their organelles.

9. Teaching and Learning Strategies

Lecture and discussion method, followed by interactive questions and allowing for questions and discussion. In addition to several other teaching methods used such as presentations, scientific reports, and laboratory experiments.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	**2**	Definition of microbiology, historical overview of its development, microscope and its relation to	Introduction	Whiteboard, Projector	Exams & reports

		microbiology.			
2	**2**	Study of microbiology sections, classification of microorganisms	Microbiology divisions	Whiteboard, Projector	Exams & reports
3	**2**	Shapes and aggregations of bacteria, bacterial staining, bacterial counting methods	Bacterial Morphology	Whiteboard, Projector	Exams & reports
4	**2**	Study of bacterial cell components and their functions	Bacterial Physiology	Whiteboard, Projector	Exams & reports
5	**2**	Phases of bacterial growth and reproduction, factors affecting bacterial growth	Bacterial Growth	Whiteboard, Projector	Exams & reports
6	**2**	Study of different methods of microbial nutrition, types of culture media and their components	Microbial Nutrition	Whiteboard, Projector	Exams & reports
7	**2**	Study of aerobic and anaerobic (fermentation) respiration in bacteria.	Bacterial Respiration	Whiteboard, Projector	Exams & reports
8	**2**	Study of methods of controlling microorganisms, physical, chemical, and mechanical	Control of Microorganisms	Whiteboard, Projector	Exams & reports
9	**2**	Addressing different types of microorganisms, such as viruses	Other Microorganisms	Whiteboard, Projector	Exams & reports

10	**2**	Addressing different types of antibiotics, their families, and their mechanisms of action	Antibiotics	Whiteboard, Projector	Exams & reports
11	**2**	Introduction to microbial genetics, structure of DNA, RNA, and plasmids	Microbial Genetics	Whiteboard, Projector	Exams & reports
12	**2**	Study of toxicity and major diseases caused by microorganisms	Microbial Pathogenicity	Whiteboard, Projector	Exams & reports
13	**2**	Industrial, agricultural, and pharmaceutical Microbiology	Microbial Applications	Whiteboard, Projector	Exams & reports
14	**2**	Study of some bacterial genera	Bacterial Genera	Whiteboard, Projector	Exams & reports

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: • 30 marks for the first midterm exam. • 30 marks for the second midterm exam. • The average of the two midterm exam marks. • 10 marks for daily tests, attendance, and participation. • 40 marks for the student's annual effort. • 60 marks for the final exam. • The final grade for the student including the annual effort is 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Not applicable
Primary references (sources)	Principles of Microbiology Microbiology
Recommended supporting books and references (scientific journals, reports...)	Ananthanarayan and Paniker's Textbook of Microbiology, Twelfth Edition
Electronic references, websites:	American Society for Microbiology, https://microbiologysociety.org/

Course Description Form .....

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1. Course Name: Microbiology – practical
2. Course Code: 2nd class
3. Semester / Year: Courses system
4. Description Preparation Date: 10/ 9 / 2024
5. Available Attendance Forms:Presency class lectures

6. Number of Credit Hours (Total) / Number of Units (Total) : 39 hours

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

Name: Assist. Lecturer : Abdulrahman Jirgees Younis
Email: msc.biologist91@gmail.com

8. Course Objectives

Course Objectives	ntroducing the different types of bacteria and their relationship to the environment and humans , and knowing the benificial and harmful types and their relationship to human diseases . Raise student's practical skills in how to provide appropriate environmental conditions for the growth of microorganisms in the laboratory to study them , prepare the cultural media on which these organisms grow , and learn methods for their diagnosis. Empowering students and raising their abilities in how to prepare the appropriate medium for the growth of each microorganism (bacterial) according to its requirements . Training students on how to use the necessary equipments in the microbiology laboratory , especially the microscope .

9. Teaching and Learning Strategies

Strategy	Using the standard method (delivering lectures) and presenting slides via Powerpoint .

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
September third week	3	Laboratory safety	Laboratory tools and devices and how to use them	Using the data show and presenting theoritical material	oral and written questions
September fourth	3	Sterilizations and disinfection methods	Identify the mechanisms of physical sterilization	Use the Data show	Quiz , oral and written questions

week			and chemical disinfection		
October First week	3	Sterilizations and disinfection methods	Identify the mechanisms of physical sterilization and chemical disinfection	Use the Data show	Quiz , oral and written questions
October second week	3	Cultures media	Introducing the types of media , its components , function and structure.	Use the Data show + practical experience	Quiz , oral and written questions
October third week	3	Bacteria cultivation	Introducing the patterns of cultivation of bacteria on cultural media	Use the Data show + practical experience	Quiz , oral and written questions
October fourth week	3	Bacterial isolation	Detection of differnt sources of bacterial isolation	Use the Data show +practical experience	Quiz , oral and written questions
November first week	3	Production of pure bacterial cultures	Methods of transporting and isolationof bacteria under sterile conditions	Use the Data show + practical experience	Quiz , oral and written questions
November second week	3	Bacterial stains	Detection of differnt types of bacterial stains	Use the Data show +practical experience	Quiz , oral and written questions
November third week	3	Bacterial stains	Detection of differnt types of bacterial stains	Use the Data show +practical experience	Quiz , oral and written questions
November fourth week	3	Bacterial counting	Numerical and quantitative estimationa live and total counting of bacteria	Use the Data show +practical experience	Quiz , oral and written questions
December first week	3	Bacterial counting	Numerical and quantitative estimationa . live and total counting of bacteria	Use the Data show +practical experience	Quiz , oral and written questions
December second week	3	Bacterial movement	Detection of bacterial types according to their	Use the Data show + practical	Quiz , oral and written questions

			motility characterstics	experience	
December third week	3	Factors affecting bacterial growth	Introducing the intrinsic and genetic factors affecting	Use the Data show + practical experience	Quiz , oral and written questions

11.Course Evaluation	
Exam of the first month is from 10 and second month is from 10 . Attendance +participation + daily exams is from10 A degree becomes 30 in which divided by 3 . the average is extracted from 10 .	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Nothing
Main references (sources)	**Basics of the practical curriculum . Osama Nijris.2022** **Bergey's Manual of Systematic Bacteriology** .N.R. Krieg. W Ludwig .W B Whitman . B P Hedlund. B J Paster. J T Staley. N Ward. D Brown . A Es Parte . 2010. **Brock Biology of Microorganisms, 12th edn** . Michael T Madigan ,John Martinko . P.V.Dunlap. D.P.Clark. 2004 .
Recommended books and references (scientific journals , reports ...)	**Practical Medical Microbiology** . 14th ed . Collee , J.F. ; Fraser , A.G. ; Marmian, B.P. and Simons , A. 1996 .
Electronic References , Websites	Google Search . Pubmed. Google scholar

Course Description Form

1. Course Name:
Computer
2. Course Code:

Computer (Theory + Practical) - Second Stage
3. Semester / Year:
Chapter one
4. Description Preparation Date:
2024/9/9
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
28 hours
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Professor. Dr. Mohammed Abdilfattah Ali Email: mohamedgeo@tu.edu.iq
8. Course Objectives

Course Objectives	Understanding E-Commerce: Define the types of e-commerce and its benefits and drawbacks. Using ATMs: Learn how ATMs work and their different types. Network and Information Security: Raise awareness of network security issues and methods to protect information. Exploring Artificial Intelligence: Understand AI technologies and their applications across various fields
9. Teaching and Learning Strategies	
The strategy	Using the standard method (lecture delivery), organized content division, effective use of multimedia, discussion method, providing practical examples, and problem-solving approach.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic	Learning Method	Assessment Method
Week 3 September	3	Understand the basics and types of e-commerce	Introduction to E-Commerce	Printed lectures, Display screen, Interactive lectures, and presentations.	Short quizzes at the end of the lecture, Homework assignments
Week 4 September	2	Analyze the benefits and	Benefits and Drawbacks of E-	Printed lectures, Display screen,	Practical assessment in

		drawbacks of e-commerce	Commerce	Group discussion	the laboratory.
Week 1 October	2	Identify the types of ATMs and how to use them	Introduction to ATMs	Interactive lecture - dialogue and discussion.	Group discussion and practical lessons.
Week 2 October	2	Understand how an ATM operates	How ATMs Work	Watching an educational video.	Short quizzes at the end of the lecture and practical assessment.
Week 3 October	2	Recognize network security issues and protection methods	Network and Information Security	Printed lectures, discussions.	Short quizzes at the end of the lecture.
Week 4 October	2	Understand basic cybersecurity techniques	Cybersecurity Techniques	Interactive lecture and presentations.	Short quizzes at the end of the lecture.
Week 1 November	2	First-month exam			
Week 2 November	2	Understand the concept and applications of AI	Definition of Artificial Intelligence	Theoretical lecture and presentations.	Short quizzes at the end of the lecture.
Week 3 November	2	Identify different AI techniques	AI Techniques	Theoretical lecture, presentations, and group discussion.	"Practical test."
Week 4 November	3	Analyze AI applications in various fields	Applications of AI	Case study.	"Research project, homework assignment."
Week 1 December	2	Understand the challenges and risks associated with AI	Theoretical Lecture	Theoretical lecture, presentations, and group discussion.	Short quizzes at the end of the lecture.
Week 2 December	2	Discuss the future of AI and its impact on society	Group Discussion	Group discussion.	"Final assessment."
Week 3 December	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10 • (Theoretical pursuit of 40) Pursuit of 40 • Final exam of 60 • Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	1. الدكتور عادل عبدالنور، مدخل الى عالم الذكاء الاصطناعي 2. Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020) 3. Alan Evans, Kendall Martin, Mary Anne Poatsy, “Technology In Action Complete", 16th Edition (2020). 4. Ahmed Banafa, "Introduction to Artificial Intelligence (AI)", 1st Edition (2024). .....
Primary references (sources)	.....
Recommended supporting books and references (scientific journals, reports...)	.....

Course Description Form

1. Course Name:
Counseling and mental health
2. Course Code:
3. Semester / Year:
The first Semester/

4. Description Preparation Date:

10/09/3033

5. Available Attendance Forms:

In-person (Weekly)

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

45 hours

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

Name: Assistant teacher : Prof. Dr. Ali Olaij Khudhur
Email: dr.ali7763@tu.edu.iq

8. Course Objectives

Course Objectives	• Recognizing the great importance of the subject of Counseling and mental health for the teacher in his dealings with students in the primary stage • Recognizing the great importance of the subject of counseling and mental health for the teacher in his dealings with students in the primary stage • Enabling the learner to deal with the problems he encounters and how to overcome them in a scientific manner.

9. Teaching and Learning Strategies

Strategy	Standard method (lectures) Discussion method Method of solving problems

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
September-2	3	Counseling and mental health	Definitions in psychological and educational counseling	lecture	Class performance

September-3	3	Counseling and mental health	Definitions in psychological and educational counseling	lecture	Class performance
September-4	3	Counseling and mental health	Indicative methods	lecture	Class performance
October- 1	3	Counseling and mental health	The foundations on which psychological and educational guidance is based	lecture	Class performance
October- 2	3	Counseling and mental health	Fields of psychological and educational counseling	lecture	Class performance
October-3	3	Counseling and mental health	Fields of psychological and educational counseling	lecture	Class performance
October- 4	3	Counseling and mental health	Psychological and educational counseling theories	lecture	Class performance
November-1	3	The first-month exam			
November-2	3	Counseling and mental health	Information necessary for psychological and educational	lecture	Class performance

			guidance		
November-3	3	Counseling and mental health	Definitions in mental health	lecture	Class performance
November-4	3	Counseling and mental health	- Mental health curricula - Characteristics of a mentally healthy personality	lecture	Class performance
December-1	3	Counseling and mental health	Defensive mental mechanisms	lecture	Class performance
December-2	3	Counseling and mental health	Defensive mental mechanisms	lecture	Class performance
December-3	3	Counseling and mental health	Compatibility and its indicators	lecture	Class performance
December-4	3	The Second-month exam			

11. Course Evaluation
Students are assessed during the semester based on the following criteria:
First-month exam20% Second-month exam: 20% (The semester's grade is now out of 40) Final exam: 60% Final grade: 100%

13. Learning and Teaching Resources	
	1_ Educational and psychological guidance/Dr. Asim Mahmoud Al-Hayani, Mosul University Press, 1990 2_ Psychological guidance and counselling/Dr. Hamed Abdel Salam Zahran, The World of Books, Cairo, 1980. 3- Mental health and psychotherapy/Dr. Hamed Abdel Salam Zahran, The World of Books, Cairo, 1986.
	1_ Educational and psychological guidance/Dr. Asim Mahmoud Al-Hayani, Mosul University Press, 1990 2_ Psychological guidance and counselling/Dr. Hamed Abdel Salam Zahran, The World of Books, Cairo, 1980. 3- Mental health and psychotherapy/Dr. Hamed Abdel Salam Zahran, The World of Books, Cairo, 1986.

Course Description Form

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1. Course Name:
Baath regime crimes .....
2. Course Code:
Baath regime crimes
3. Semester / Year:
First-class /2024-2025
4. Description Preparation Date:
7-9-2024
5. Available Attendance Forms:
In-person classroom lectures
6. Number of Credit Hours (Total) / Number of Units (Total)

Number of units (total) 24 hours Number of units 2					
7. Course administrator's name (mention all, if more than one name)					
Name: Faris Mahmoud faraj Email: faris.be@tu.edu.iq					
8. Course Objectives					
Course Objectives	• • •				
9. Teaching and Learning Strategies					
Strategy					
10. Course Structure					
	Hours	**Required Learning Outcomes**			**Evaluation method**
October 1	2		Definition of crimes and their types	Crime Sections	Classroom performance
October 2	2		Crime Sections	Crime Sections	Classroom performance
October 3	2		Baath regime crimes according to the Iraqi Criminal Court law	Crime Sections	Classroom performance
October4	2		Types of international crimes	Crime Sections	Classroom performance
November1	2		Decisions issued	Crime	Classroom

			by the International Criminal Court	Sections	performance
November2	2		Psychological and social crimes	Crime Sections	Classroom performance
November3	2		The Baath regime's position on religion	Crime Sections	Classroom performance
November4	2		Pictures of human rights violations	Crime Sections	Classroom performance
December1	2		Environmental crimes of the Baath regime	Crime Sections	Classroom performance
December2	2		Mass grave crimes	Crime Sections	Classroom performance
December3	2		Mass graves events	Crime Sections	Classroom performance
December4	2		Prisons and detention places	Crime Sections	Classroom performance

The grade is distributed out of 100 accordind to the tasks assigned to the student, such as daily preparation, daily, oral, monthly and written exams, reports, etc.					

Course Description Form

1. Course Name:
English language-2
2. Course Code:
3. Semester / Year:
Semester .....
4. Description Preparation Date:
9-9-2024 .....
5. Available Attendance Forms:
Face to Face (compulsory)
6. Number of Credit Hours (Total) / Number of Units (Total)
24
7. Course administrator's name (mention all, if more than one name)
Name: Atheer Jasim Mohammed, Msc. Email: atherjandal@tu.edu.iq
8. Course Objectives

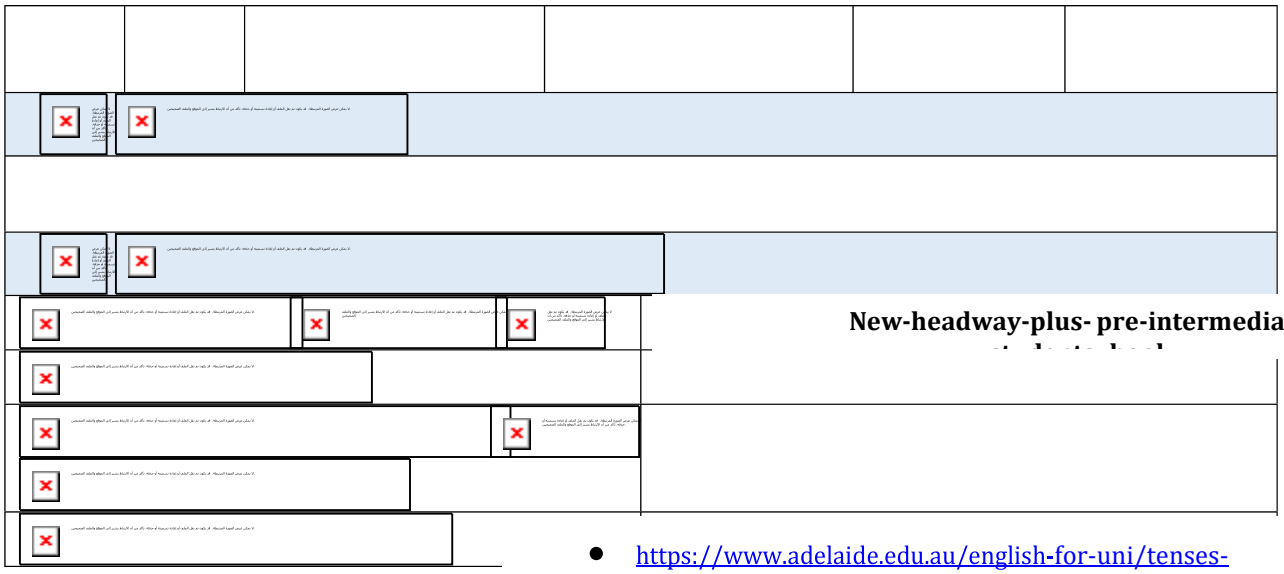
Course Objectives	The main aim of the course is to encourage the students to use English, learn new vocabularies, and learn more about English grammar.

9. Teaching and Learning Strategies

Strategy	Using modern aspect to make students more attention for English learning.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2		Introduction	Lecture	*Quiz & activity *Daily assessment
2			Chapter One	Lecture	*Quiz & activity *Daily assessment
3			Chapter One	Lecture	*Quiz & activity *Daily assessment
4,5			Chapter Two	Lecture	*Quiz & activity *Daily assessment
6			Chapter Two	Lecture	*Quiz & activity *Daily assessment
7			EXAM1	-	-
8			Chapter Three	Lecture	*Quiz & activity *Daily assessment
9			Chapter Three	Lecture	*Quiz & activity *Daily assessment
10			Chapter Four	Lecture	*Quiz & activity *Daily assessment
11			Chapter Four	Lecture	*Quiz & activity *Daily assessment
12			Chapter Five	Lecture	*Quiz & activity *Daily assessment
13			Chapter Five	Lecture	*Quiz & activity *Daily assessment
14			EXAM 2	-	-



New-headway-plus- pre-intermediate-

Course

- https://www.adelaide.edu.au/english-for-uni/tenses-in-academic-writing/
- https://elt.oup.com/student/headway/beg/test_builder?cc=us&selLanguage=en
- https://ptetutorials.com/sample-questions/listening-multiple-choice- question-single-answer

1. Course Name:
Arabic
2. Course Code:
Arabic
3. Semester / Year:
Arabic
4. Description Preparation Date:
2024/9/9
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: Ali Jasim Mohamed Email: Ali.j.Mohamed@tu.edu.iq
8. Course Objectives

Course Objectives	▪ Arabic Language Skills: Developing effective writing and reading skills in the Arabic language. ▪ Understanding Grammatical and Morphological Writing Instructions: Teaching students the fundamental rules of the

	Arabic language and how to use them correctly in speaking. ▪ Enhancing Critical Thinking: Encouraging students to analyze literary and critical texts and apply their analytical skills. ▪ Arabic Culture: Introducing students to Arabic literature and cultural heritage, which helps them appreciate a distinct cultural identity.

9. Teaching and Learning Strategies

The strategy	Using the standard method (lecture delivery) involves a structured content division and accommodating diverse students, such as learning that encourages participation in discussions and group activities, which enhances their understanding. It also includes modern texts and multimedia to support learning, in addition to analyzing literary texts and fostering positive critical motivation. Furthermore, the process of extracting structural clarifications is enhanced, aiding in the application of future concepts.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic	Learning Method	Assessment Method
Week 3 September	3	Understanding the fundamental rules of Arabic language	Introduction to Arabic Grammar	Theoretical lectures, practical exercises	Short test, homework assignments
Week 4 September	2	Improving reading and writing skills	Reading and Writing Techniques	Reading texts, writing essays	Writing performance assessment, text reviews
Week 1 October	2	Analyzing literary texts	Modern Arabic Literature	Group discussions, text analysis	Participation assessment, text analysis
Week 2 October	2	Applying grammatical rules	Syntax and Morphology	Practical exercises, workshops	Practical tests, assignments
Week 3 October	2	Enhancing oral expression skills	Public Speaking	Presentations, discussions	Oral performance assessment
Week 4 October	2	Understanding the cultural contexts of the language	Arabic Culture	Interactive lectures, case studies	Cultural project, research reports

Week 1 November	2	**First-month exam**			
Week 2 November	2	Developing creative writing skills	Creative Writing	Workshops, brainstorming sessions	Assessment of creative works
Week 3 November	2	Exploring classical Arabic literature	Classical Arabic Literature	Lectures, text reading	Tests, analytical essays
Week 4 November	3	Using multimedia in learning	Modern Educational Technologies	Utilizing educational programs	Performance assessment in technology use
Week 1 December	2	Enhancing critical thinking	Literary Criticism	Discussions, text analysis	Discussion assessment, critical essays
Week 2 December	2	Practical application of acquired skills	Final Project	Group work, field research	Final project, group evaluation
Week 3 December	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10 ..... • (Theoretical pursuit of 40) Pursuit of 40 ..... • Final exam of 60 ..... • Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

Course Description Form

1. Course Name:
Organic Chemistry
2. Course Code:
Organic Chemistry
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
10-9-2024
5. Available Attendance Forms:
In attendance (weekly)
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. Abdulwahid AbdulSattar Talouh Email: altlwhbdalwahd @gmail.com
8. Course Objectives

Course Objectives	A- Cognitive Objectives: 1- Providing the student with sufficient information to acquire expertise in classifying organic compounds. Equipping the student with the knowledge to identify and name organic compounds. Providing the student with sufficient knowledge to prepare organic compounds.

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subje name	Learning method	Evaluation method
1	2	General Introduction	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily, monthly exams, homework
2	2	Alkyl Halides	Organic Chemistry	Paper lecture Display Screen	Daily and monthly exams, homework

				Blackboard and pen	
3	2	Alcohols	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
4	2	Amines	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
5	2	Aldehydes	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
6	2	First-month exam			
7	2	Ketones	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
8	2	Carboxylic Acids	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
9	2	Esters	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
10	2	Amides	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
11	2	Anhydrides	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
12	2	Acid Halides	Organic Chemistry	Paper lecture Display Screen Blackboard	Daily and monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

				and pen	
13	2	Second month exam			

Course Description Form

1. Course Name:	
Practical Organic Chemistry-2	
2. Course Code:	
3. Semester / Year:	
Second semester/2025	
4. Description Preparation Date:	
10/1/2025	
5. Available Attendance Forms:	
Face to Face (compulsory)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
28	
7. Course administrator's name (mention all, if more than one name)	
Name: Ghazi Ibrahim Abbas Abd-ulwahab Email: ghazi92chemist@tu.edu.iq	
8. Course Objectives	
Course Objectives	- The student will be familiar with some basic concepts in practical organic chemistry. At the end of the stage, the student will be able to identify and name the tools and glassware in the laboratory, know the devices in the laboratory and how to use them, deal with chemicals, distinguish between chemicals by their properties, know laboratory safety tools and prevention procedures, plan theoretical calculations before conducting the experiment, conduct experiments and how to deal with them, measure the melting and boiling points of prepared compounds, separate and precipitate materials from their solutions, purify prepared compounds.
9. Teaching and Learning Strategies	

Strategy	- A performance evaluation form according to a standard that depends on the nature of the scientific material. - Works within group work. - Tests (written and oral). - General and transferable qualification skills (other skills related to employability and personal development). - Training students to use modern teaching methods and techniques, including integrated education using technology. - Multimedia. - Assigning students to conduct research related to the fields of scientific material. - Enabling students to use their personal skills.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 4 January	2	Laboratory safety rules and specifications	Safety and security in scientific laboratories	Lecture, practical part and discussion	Surprise tests
Week 1 February	2	How to store chemicals	Chemical laboratory chemicals	Lecture, practical part and discussion	Surprise tests
Week 2 February	2	Tools used in the laboratory	Tools, glassware and apparatus in the chemical laboratory and their uses	Lecture, practical part and discussion	Surprise tests
Week 3 February	2	Determine the melting point of solid chemical compounds.	Melting point experiment	Lecture, practical part and discussion	Surprise tests
Week 4 February	2	Determine the boiling point of liquid chemical compounds.	Boiling point experiment	Lecture, practical part and discussion	Surprise tests
Week 1 March	2	First month exam			
Week 2 March	2	How to separate and purify solid organic chemical compounds	Crystallization and recrystallization experiment	Lecture, practical part and discussion	Surprise tests
Week 3 March	2	Separating substances with a large difference in boiling point or purifying liquid	Simple distillation experiment	Lecture, practical part and discussion	Surprise tests

		substances from impurities			
Week 4 March	2	Separation of substances with a boiling point difference of less than 50℃ or purification of liquid substances from impurities	Fractional distillation experiment	Lecture, practical part and discussion	Surprise tests
Week 1 April	2	Separation of substances with very small differences in boiling points or purification of liquid substances from impurities	Steam distillation experiment	Lecture, practical part and discussion	Surprise tests
Week 2 April	2	Separation of materials from their sources found in nature	Organic solvent extraction experiment	Lecture, practical part and discussion	Surprise tests
Week 3 April	2	Second month exam			
Week 4 April	2	Solid chemical purification	sublimation experience	Lecture, practical part and discussion	Surprise tests
Week 1 May	2	Identify the properties of organic compounds and test their solubility.	Organic Compounds Solubility Experiment	Lecture, practical part and discussion	Surprise tests

11. Course Evaluation

Students are evaluated throughout the semester according to the following criteria:

- First month exam from 4/ Second month exam from 4/ Daily exam and attendance and participation from 2
- (Theoretical effort from 30 + practical effort from 10) effort from 40
- Final exam from 60
- Final grade from 100

12. Learning and Teaching Resoures

Required textbooks(curricular books, if any)	- Practical Organic Chemistry - University of Basra - College of Science - Department of Chemistry

Main references(sources)	• John McMurry "Organic Chemistry" 9th Edition Cengage Learning, USA (2016).
Recommended books and references (scientific journais, reports…)	• John McMurry "Organic Chemistry with Biological Applications" 3rd Edition Cengage Learning, USA (2015).
Electronic references, websites	Google searching for Organic Chemistry

Course Description Form

1. Course Name:
Chemistry of Representative Elements-2
2. Course Code:
3. Semester / Year:
Second semester/2025
4. Description Preparation Date:
10/1/2025
5. Available Attendance Forms:
Face to Face (compulsory)
6. Number of Credit Hours (Total) / Number of Units (Total)
28
7. Course administrator's name (mention all, if more than one name)
Name: Ghazi Ibrahim Abbas Abd-ulwahab Email: ghazi92chemist@tu.edu.iq
8. Course Objectives

Course Objectives	- The student will be introduced to some basic concepts in the chemistry of representative elements. At the end of the stage, the student will be able to perform the electronic arrangement of representative elements, determine the periodic trends in the properties of representative elements, describe the physical and chemical properties of representative elements, know the importance and uses of representative elements in daily life and the industrial field, understand the groups and periods of representative elements in the periodic table, and distinguish between the properties of metallic and non-metallic elements, alkali elements, alkaline earth elements, etc.

9. Teaching and Learning Strategies

Strategy	- A performance evaluation form according to a standard that depends on the nature of the scientific material. - Works within group work. - Tests (written and oral). - General and transferable qualification skills (other skills related to employability and personal development). - Training students to use modern teaching methods and techniques, including integrated education using technology. - Multimedia. - Assigning students to conduct research related to the fields of scientific material. - Enabling students to use their personal skills.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 4 January	2	Its position in the periodic table, its properties, ionization energy, electronegativity, electron affinity, atomic radius, covalent radius	Introduction to Representative Elements	Lecture, discussion and Power point	Surprise tests
Week 1 February	2	Its existence, general properties, reactions, hydrogen isotopes, its production in industry and its uses, isomers...	Hydrogen and hydrides	Lecture, discussion and Power point	Surprise tests
Week 2 February	2	General properties, preparation, existence, halides, oxides, sulfates, similarity between lithium and magnesium	Alkaline elements	Lecture, discussion and Power point	Surprise tests
Week 3 February	2	General properties, preparation, existence, halides, oxides, hydrides, similarity between beryllium and aluminium	alkaline earth elements	Lecture, discussion and Power point	Surprise tests

Week 4 February	2	Introduction, preparation, properties, halides, oxides, alum, hydrides, nitrogenous compounds of boron	Boron-aluminum group	Lecture, discussion and Power point	Surprise tests
Week 1 March	2	First month exam			
Week 2 March	2	Properties of elements, their preparation, halides, carbides, oxides, germanium, tin and lead elements	carbon silicon group	Lecture, discussion and Power point	Surprise tests
Week 3 March	2	Properties of elements, their existence, methods of obtaining them, their most important compounds, oxides, peroxides and superoxides	Oxygen and sulfur group	Lecture, discussion and Power point	Surprise tests
Week 4 March	2	Introduction, existence, methods of separation, halogen and oxyhalogen acids, their compounds	halogen group	Lecture, discussion and Power point	Surprise tests
Week 1 April	2	Its general characteristics, compounds, uses	noble gas group	Lecture, discussion and Power point	Surprise tests
Week 2 April	2	The importance of symmetry in chemistry, symmetry processes, examples of it	Symmetry	Lecture, discussion and Power point	Surprise tests
Week 3 April	2	Second month exam			

11. Course Evaluation

Students are evaluated during the semester according to the following principles:

- First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10
- Pursuit of 40
- Final exam of 60

❖ Final score out of 100
12. Learning and Teaching Resoures

Required textbooks(curricular books, if any)	- Modern Inorganic Chemistry (Part One). Authored by: Dr. Naaman Al-Naimi - Inorganic Chemistry Representative Elements. Authored by: Dr. Essam Gerges
Main references(sources)	Fundamentals of Inorganic Chemistry / Written by Prof. Dr. Mohamed Magdy Wasil
Recommended books and references (scientific journais, reports…)	- Nuclear Radiochemistry. Authored by: Dr. Anis Malik. - Inorganic Chemistry. Authored by: Cotton and Wilkonsin
Electronic references, websites	Google searching for Inorganic Chemistry

Course description form

6- Course Name
Differentiation and integration
7- Course Code
The second phase
8- Season or year
2025-2024Second Semester
9- Date this description was prepared
2025/1/28
10- Available attendance forms
In person (weekly)
6. Number of study hours (total) / number of units (total)

30	
7. Name of the course administrator (if more than one name is mentioned)	
Manaf Khalaf Mahmoud Name: Doctor teacher emil: munah.mahmood21@tu.edu.qi	
8. Course objectives	
Objectives of the study subject	• Dealing with the study of rates of change and the study of accumulated quantities over time. • Identify the rate at which things change, such as the speed at which a body moves or how a function changes as its inputs change. • Understanding and analyzing the behavior of functions and differential equations. • Study the definite integral and its properties, and know the indefinite integral and standard integrals.
9. Teaching and learning strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method

10. Course structure

the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
January 1	2	Introduction to differentiation and integration, numbers, fractions, and inequalities	Inequalities	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
February 2	2	differential functions	Rules for differential functions	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
	2	implicit derivation	Applications of implicit	Paper lectures	Daily exams

February 3			derivation	Display Screen Blackboard and pen	monthly, Homework
February 4	2	Trigonometric functions	Rules and applications of trigonometric functions	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
February 5	2	Applications to differentiation	Examples and exercises on differential functions	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
March 6	**2**	First month exam			
March 7	2	integration	Definite integral	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
March 8	2	integration	The fundamental theorem of calculus	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
March 9	2	Indefinite integral	Rules and applications of indefinite integration	Paper lectures Display Screen Blackboard and pen	Daily exams monthly, Homework
	2	Integration of basic functions	Integration applications of	Paper lectures	Daily exams

April 10			basic functions	Display Screen Blackboard and pen	monthly, Homework
April 11	**2**	Second month exam			
April 12	2	Integration methods	Performing integration of functions	Paper lectures Display Screen Blackboard and pen	Questions
April 13	2	Definite integral	Perform definite integration examples and exercises	Paper lectures Display Screen Blackboard and pen	Questions
May 14	2	General Review	Solve comprehensive examples and exercises	Paper lectures Display Screen Blackboard and pen	Homework

11. Course evaluation	
Students are evaluated during the semester according to the following principles 5- First month exam from 25 / Second month exam from 25 / Daily exam, attendance and participation from 10 6- Striving from 40 7- Final exam of 60 8- Final score out of 100	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	Calculus (Easy Schwam Summaries Mendelssohn et al. 2013)
Main references (sources)	The Theory of Differential Calculus (J. A.

	Faridi, translated by Prof. Dr. Ahmed Sadiq and Prof. Dr. Ramadan Juhayna 2010)
Recommended supporting books and references (scientific journals, reports...)	
Electronic references, Internet sites	

3.

Course Description Form

1. **Course Name:**
Chemistry gravimetric analysis
2. **Course Code:**
Chemistry gravimetric analysis
Semester / Year:
Chapter two
4. **Description Preparation Date:**
2025-01-10
5. Available Attendance Forms:
In attendance (weekly)
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: Doctor teacher Hassam Salah Dahkil **Email: hassam.dakhil21@tu.edu.qi**
8. Course Objectives

Course Objectives	• Introducing the importance of Chemistry gravimetric analysis and the relationship of this science to other sciences. • Developing students' skills in analytical Chemistry sciences. • Learn about the types of qualitative and quantitative • • Identify sediments, sediment characteristics, and separation methods

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
January 4	0	Introducing the student to analytical chemistry	Introduction and general idea about weight analysis and basic principles	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

February 1	0	Gravimetric analysis methods	Gravimetric analysis methods, sediments	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
February 2	0	Learn about weight analysis calculations	Weight analysis calculations, weight factor	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
February 3	0	Organic and inorganic precipitants	Organic and inorganic precipitants, their types, and the conditions that must be met	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
February 2	0	solubility	Solubility, dissolution yield, applications of the dissolution yield	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
March 1	0	Factors affecting solubility	Factors affecting solubility: the common ion, the pH of the solution, and the complex ion	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
March 2	2	First-month exam			
March 3	0	Factors affecting solubility	Factors affecting solubility, temperature, type and nature of solvent. Hydrolysis of salt.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
March 4	0	Crystalline formation of the sediment	Crystalline formation of sediments, particle size	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
April 1	0	Precipitate washing solutions	Precipitate washing solutions, effect on the precipitate	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
April 2	2	Gravimetric analysis steps	Steps of gravimetric analysis, sample weight, modeling, sample dissolution, sample	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

April 3	0	Gravimetric analysis steps	Steps for gravimetric analysis, washing the precipitate, burning the precipitate, and dissolving the precipitate	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
April 4	0	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Theoretical basics of quantitative gravimetric and volumetric analysis of inorganic analytical chemistry, Prof. Dr. Hadi Kazem Awad
Primary references (sources)	Dr.. Moayad Qasim Al-Abaiji, Dr. Thabet Saeed Al-Ghabsheh, "Foundations of Analytical Chemistry," University of Mosul, 1986
Recommended supporting books and references (scientific journals, reports...)	Dr.. Moayad Qasim Al-Abaiji, Dr. Thabet Saeed Al-Ghabsheh, "Foundations of Analytical Chemistry," University of Mosul, 1986

Course Description Form

1. Course Name:
Environmental and Health Education
2. Course Code:

Environmental and Health Education (Theoretical)

3. Semester / Year:

The Second Semester/2025

4. Description Preparation Date:

12/01/2025

5. Available Attendance Forms:

In-person (Weekly)

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

30 hours

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

Name: Assistant teacher **Abdullah Mahmoud Ajil**
Email: abdullah.m.ajil@tu.edu.iq

8. Course Objectives

Course Objectives	• Introduction to the importance of environmental and health education and its role in daily life. • Familiarizing students with the fundamental concepts of environmental health. • Understanding the principles and rules of individual health and safety. • Introducing healthy habits for individuals and addressing ways to overcome unhealthy habits. • Providing an introduction to first aid. • Explaining epidemics resulting from pollution and harm to public health.

9. Teaching and Learning Strategies

Strategy	Utilizing the standard method (lecture delivery). Feedback-based approach. Discussion and dialogue method. Problem-solving approach.

10. Course Structure

	Hours	**Required Learning Outcomes**			**Evaluation method**

January	2	- Definition of Environmental Education - Objectives of Environmental and Health Education - Concept of Health - Public Health - Components of Public Health - Objectives of Public Health	The concept of public health and its principles	- Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
February	2	- Concept of Family Health - Maternal and Child Care - Objectives of Maternal and Child Care	Family health A	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
February	2	- Curriculum for Maternal Health Care Before Pregnancy - Child Care	Family health B	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
February	2	- ・ Concept of School Health - ・ Objectives of School Health - ・ School Health Services - ・ Importance of Breaks Between Classes - ・ The Role of Teachers in the Health Care of their Students	School health	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments

February	2	- Nutrients - Functions of Food - Vitamins	Nutrition A	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	- Symptoms of Malnutrition in Children - Diseases of Malnutrition - Food Poisoning	Nutrition B	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	The first-month exam			
March	2	- Pulmonary Tuberculosis - Asthma - Whooping Cough - Diarrhea - Polio (Poliomyelitis)	Communicable diseases	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	- Swine Flu (H1N1 Influenza) - AIDS (Acquired Immunodeficiency Syndrome)	Infectious diseases	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	- Smoking - Alcohol - Drug Addiction - Taking Medications without Consultation with a Doctor	Some harmful habits Their impact and the diseases they cause	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	- Duties of a First Responder - Bandaging - Tourniquets - Wounds - Bleeding	First aid	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments

April	2	- Fractures - Burns - Epilepsy (Seizures) - Drowning	First aid	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	- Home Pharmacy - Contents of the Pharmacy	Home pharmacy	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	The Second-month exam			
May	2	- Introducing the student to environmental and health education and its importance - In-depth study about food, types of diseases, and first aid	General review of the prescribed curriculum	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams

11. Course Evaluation	
Students are assessed during the semester based on the following criteria: First-month exam: 25% Second-month exam: 25% Daily exams, attendance, and participation: 15% (The semester's grade is now out of 40) Final exam: 60% Final grade: 100%	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if available)	**Environmental Health: From Global to Local, 3rd Edition**
Primary References (Sources)	Title: "Environmental Psychology" Authors: Ali Askar, Mohammed Al-Ansari Location: Kuwait Publisher: Dar Al-Buhooth Al-Ilmiyah Edition:

	1st Year: 1983
Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)	Chawla, Louise & Cushing, Debra. (2007). Education for strategic environmental behaviour. Environmental Education Research, 13(4), 437-452. Environmental Education Research - ENVIRON EDUC RES. 13. 437-452. 10.1080/13504620701581539. Title: "The Problem of Environmental Pollution and the Role of Education in Confronting it" Author: Fadia Hamed Thesis Type: Master's Thesis College: Faculty of Education University: Al-Minufiya University Year: 1990
Electronic References, Internet Websites	• https://www.wiley.com/en-gb • https://ar.wikipedia.org/wiki • https://scholar.google.com/schhp?hl=ar • https://shamela.ws/

Course Description Form

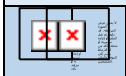
1. Course Name:
Invertebrate
2. Course Code:
3. Semester / Year:
First Semester, Courses System .....
4. Description Preparation Date:
January 2025 .....
5. Available Attendance Forms:
Classroom Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
26 hours
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Muhanad Hamed Salih Email: muhanad.h.salih@tu.edu.iq
8. Course Objectives

- **The definition and importance of Invertebrate Science and its relationship with other sciences.**
- **Developing students' skills in identifying animal phyla.**
- **Understanding the benefits of invertebrates.**
- **Identifying the types of invertebrates.**
- **Understanding the diseases caused by invertebrates and their life cycles**

9. Teaching and Learning Strategies

Using the standard method (lecturing) / Discussion method / Problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	The evolutionary relationships between invertebrate animal phylaum.	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
2	2	The importance of invertebrates	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
3	2	Phylum Protozoa	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
4	2	Phylum Porifera (Sponges)	Invertebrate	Display screen, whiteboard,	Exams & reports

				and pen.	
5	2	Phylum Cnidaria (Cnidarians)	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
6	2	First Month Exam			
7	2	Phylum Platyhelminthes	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
8	2	Phylum Nematoda	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
9	2	Phylum Mollusca	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
10	2	Class Gastropoda	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
11	2	Phylum Echinodermata	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports

12	2	Class Echinoidea	Invertebrate	Display screen, whiteboard, and pen.	Exams & reports
13	2	Second Month Exam			

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: • 30 marks for the first midterm exam. • 30 marks for the second midterm exam. • The average of the two midterm exam marks. • 10 marks for daily tests, attendance, and participation. • 40 marks for the student's annual effort. • 60 marks for the final exam. • The final grade for the student including the annual effort is 100

12. Learning and teaching resources	
Invertebrate Zoology - London, A and C. Black, 2009	Not applicable
Invertebrates - Randa Ahmed Abdelhadi, 2010	Main references (sources).
Invertebrate Biology - Mohamed Hassan Al-Hamoud, 2005	Recommended supporting books and references (scientific journals, reports, etc.).Edition
Specialized topics websites from Google Search	Electronic references, websites

Course Description Form

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1. Course Name:
Practical Invertebrate Zoology
2. Course Code:
Practical Invertebrate Zoology
3. Semester / Year:
The Second Semester/2025
4. Description Preparation Date:
12/01/2025
5. Available Attendance Forms:
In-person (Weekly)

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

30 hours

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

Name: Assistant teacher **Abdullah Mahmoud Ajil**
Email: Abdullah.m.ajil@tu.edu.iq

8. Course Objectives

Course Objectives	• Introduction to Invertebrate Zoology and its classification. • Familiarizing students with the basic concepts of invertebrates. • Visual observation of some living organisms belonging to this group. • Studying the internal structure of invertebrates. • Understanding the role of invertebrates in nature and the environment. • Explaining the benefits and harms of invertebrates.

9. Teaching and Learning Strategies

Strategy	Utilizing the Standard Method (Lectures) / Feedback Method / Discussion and Dialogue Method / Problem-Solving Method

10. Course Structure

	Hours	**Required Learning Outcomes**			**Evaluation method**
January	2	Definition of invertebrates. Their history. Characteristics. Importance.	The concept of invertebrates and their general characteristics	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
February	2	Taxonomic theories. How invertebrates are classified. Important taxonomic ranks.	Taxonomic Ranks	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments

February	2	Definition of Invertebrates. Definition and structure of Annelida. The Amoeba as an example.	Phylum: Annelida Class: Hirudinea	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
February	2	Definition and structure of Cnidaria. The Euglena as an example.	Phylum: Cnidaria Class: Hydrozoa	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
February	2	Definition and structure of Bryozoa. The Bryozoan (Bramble) as an example.	Phylum: Bryozoa	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	Definition and structure of Porifera. The Amoeba (Plasmodium) as an example.	Phylum: Porifera	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	The first-month exam			
March	2	Structure of sponges. The Sea Sponge as an example.	Phylum: Porifera	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	Structure of arthropods. The Bee as an example.	Phylum: Arthropoda	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments

March	2	Structure of flatworms. The Tapeworm (Cestoda) as an example.	Phylum: Platyhelminthes	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
April	2	Structure of annelids. The Bloodsucking Leech (Hirudinea) as an example.	Phylum: Annelida	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
April	2	Structure and importance of mollusks.	Phylum: Mollusca	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
April	2	Structure and importance of echinoderms. The Sea Urchin (Echinoidea)	Phylum: Echinodermata	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
April	2	The Second-month exam			
May	2	Introducing students to invertebrates and their importance. In-depth study of taxonomic phyla and examination of an example for each phylum.	General review of the prescribed curriculum	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: First-month exam: 6% Second-month exam: 6% Daily exams, attendance, and participation: 4% The average out of 10 Final exam: 15%

12. Learning and Teaching Resources	
Required Textbooks (Methodology, if available)	Dissection of Invertebrates C. Th. E. von (Carl Th. Ernst) Siebold
Primary References (Sources)	• Randa Ahmed Abdelhadi: "Invertebrates." • Mohammed Alyousif: "Invertebrate Zoology - Practical Section," King Saud University, 2002.
Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)	Al-Kinani, Dalia Mohammed Ali Hassan, and Emad Al-Din Abdul Mokhtar. "The Value of the Biotic Index for the Benthic Invertebrate Community and its Relationship with the Variability of Some Environmental Characteristics in the Tigris and Diyala Rivers within the City of Baghdad." Baghdad Science Journal 11.2 Special Issue for the Second Feminist Conference (2014).
Electronic References, Internet Websites	• https://www.wiley.com/en-gb • https://ar.wikipedia.org/wiki • https://scholar.google.com/schhp?hl=ar • https://shamela.ws/

Course Description Form

1. Course Name:
Practical histology and embryology
2. Course Code:

3. Semester / Year:
Course system/second semester 2024-2025
4. Description Preparation Date:
2024/1/16
5. Available Attendance Forms:
In attendance (weekly)
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: Assistant teacher Abdulmunem Kurdi Abdullah Email: Abdulmu.k019@tu.edu.iq

8. Course Objectives

Course Objectives	7. Learn about modern techniques for textile preparations. 8. Learn about methods of obtaining samples. 9. Learn about methods of fixing samples, types of fixatives and their properties. 10. Learn about the steps of textile preparations, such as washing, dewatering, etc. 11. Learn about dyeing methods with practical experiments.

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the third week February	2	Histological preparations and methods of obtaining the sample	Introduction to histology, types of specimens and how to obtain them.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

fourth week February	2	Fixatives and their types	Fixatives, their types, advantages and disadvantages of each one, and how to prepare it.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The first week March	2	Washing and dewatering process	Practical experiment illustrating the washing and dewatering process in different ways depending on the type of fixative	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
second week March	2	The process of sieving and viewing ready tissue slides	Experiment with a cooling process	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
the third week March	2	burial and casting process	Experiment with the process of burying, pouring and trimming	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
fourth week March	2	First-month exam			
The first week April	2	Sample cutting and loading of sections	Practical experiment showing how to cut	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
second week April	2	staining	A scientific experiment that explains how to dye and the types of dyes	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
the third week April	2	sustainable conservation	Save Canada Balsam and D.P.X	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

fourth week April	2	View slides	View different types of tissues	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The first week May	2	View slides	View different types of tissues	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
The second week May	2	Second month exam			
The Third week May	2	Comprehensive review	Comprehensive review	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

`11. Course Evaluation
Students are evaluated during the semester according to the following principles: - Students are evaluated during the semester according to the following principles: - First month exam from 10 / Second month exam from 10 / Daily exam, attendance and participation from 10 divided by 3 - (Practical pursuit of 10 + theoretical pursuit of 30) Striving of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Textile Preparations Book Dr. Omar Abdelkader
Primary references (sources)	Textures book by Dr. Kawakib Abdul Qadir, University of Baghdad
Recommended supporting books and references (scientific journals, reports...)	Specialized topic websites from google search

Course Description Form

1. Course Name:
Statistics
2. Course Code:
3. Semester / Year:
Chapter II / Second Year
4. Description Preparation Date:
12/1/2025
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
45 hours / 3 hours a week
7. Course administrator's name (mention all, if more than one name)
Name: Hamad Abed Mustafa Email: hamad.abd@tu.edu.iq
8. Course Objectives

Course Objectives	• Learn the concept of statistics and its development. • Learn the concept of the steps of the statistical process and methods of collecting data • Learn the concepts and methods of presenting statistical data • Learn how to use measures of central tendency and the importance of each measure • Learn how to use measures of dispersion and correlation
9. Teaching and Learning Strategies	
The strategy	1- Explanation and clarification 2- Form view 3- Self-learning method

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic	Learning Method	Assessment Method
Week 1 January	3	Learn the concept of statistics, its developments, and its relationship with other sciences	Concept of statistics	Discussion and questioning	Formative calendar
Week 2 January	3	Learn some statistical terms	Statistical terms	Discussion and questioning	Formative calendar
Week 1 February	3	Learn what statistical samples a researcher must be familiar with	Statistical samples	Discussion and questioning	Formative calendar
Week 2 February	3	Learn methods of collecting data and methods of presenting statistical data	Data collection and presentation	Discussion and questioning	Formative calendar
Week 3 February	3	Learn how to display and distribute data in a frequency table	Frequency distribution table	Discussion and questioning	Formative calendar
Week 4 February	3	The most important means of displaying data are the histogram and histogram	Data presentation methods	Discussion and questioning	Formative calendar
Week 1 March	3	Learn the concept and importance of measures of central tendency	Measures of central tendency	Discussion and questioning	Formative calendar
Week 2 March	3	The first month exam tests various tests and solves problems related to the topic			
Week 3 March	3	Learn how to use a broker account	Mediator	Discussion and questioning	Formative calendar
Week 4 March	3	Learn how to use fashion calculations	Loom	Discussion and questioning	Formative calendar

Week 1 April	3	Learn the concept and importance of correlation metrics	Correlation metrics	Discussion and questioning	Formative calendar
Week 2 April	3	How to measure Pearson's correlation coefficient	Pearson correlation coefficient	Discussion and questioning	Formative calendar
Week 3 April	3	How to measure Spearman's correlation coefficient for ranks	Spearman correlation coefficient	Discussion and questioning	Formative calendar
Week 4 April	3	Second month exam			

11. Course Evaluation	
Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10 • Pursuit of 40 • Final exam of 60 • Final score out of 100	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	• Statistics book. Dr. Imad Touma Kush . Walaa Ahmed Al-Qazzaz. Wafa Younis Hamoudi • Educational statistics book. Dr.Abdullah Falah Al-Munizel. Dr. Ayesh Mos Arayba
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Organic Chemistry
2. Course Code:
Organic Chemistry
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
19-1-2025
5. Available Attendance Forms:
In attendance (weekly)
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. Abdulwahid AbdulSattar Talouh Email: altlwhbdalwahd @gmail.com
8. Course Objectives

Course Objectives	A- Cognitive Objectives: 1- Providing the student with sufficient information to acquire expertise in classifying organic compounds. Equipping the student with the knowledge to identify and name organic compounds. Providing the student with sufficient knowledge to prepare organic compounds.

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subje name	Learning method	Evaluation method
1	2	General Introduction	Organic Chemistry	Paper lecture	Daily, monthly

				Display Screen Blackboard and pen	exams, homework
2	2	Alkyl Halides	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
3	2	Alcohols	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
4	2	Amines	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
5	2	Aldehydes	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
6	2	First-month exam			
7	2	Ketones	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
8	2	Carboxylic Acids	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
9	2	Esters	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
10	2	Amides	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
11	2	Anhydrides	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

12	2	Acid Halides	Organic Chemistry	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
13	2	Second month exam			

Course Description Form

1. Course Name:	
Practical Organic Chemistry-3	
2. Course Code:	
3. Semester / Year:	
First Semester/2024	
4. Description Preparation Date:	
9/9/2024	
5. Available Attendance Forms:	
Face to Face (compulsory)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
28	
7. Course administrator's name (mention all, if more than one name)	
Name: Ghazi Ibrahim Abbas Abd-ulwahab Email: ghazi92chemist@tu.edu.iq	
8. Course Objectives	
Course Objectives	- The student will be familiar with some basic concepts in the practical organic chemistry subject. At the end of the stage, the student will be able to identify and name the tools and glassware in the laboratory, know the devices in the laboratory and how to use them, deal with chemicals, distinguish between chemicals by their properties, know laboratory safety tools and prevention procedures, plan theoretical calculations before conducting the experiment,

	conduct experiments and methods of dealing with them.

9. Teaching and Learning Strategies

Strategy	- A performance evaluation form according to a standard that depends on the nature of the scientific material. - Works within group work. - Tests (written and oral). - General and transferable qualification skills (other skills related to employability and personal development). - Training students to use modern teaching methods and techniques, including integrated education using technology. - Multimedia. - Assigning students to conduct research related to the fields of scientific material. - Enabling students to use their personal skills.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 3 September	2	Laboratory safety rules and procedures, how to store chemicals and how to prevent them		Lecture, practical part and discussion	Surprise tests
Week 4 September	2	Experiment of Aldol condensation		Lecture, practical part and discussion	Surprise tests
Week 1 October	2	Experiment preparation of Acetanilide		Lecture, practical part and discussion	Surprise tests
Week 2 October	2	Experiment preparation of Schiff bases		Lecture, practical part and discussion	Surprise tests
Week 3 October	2	Experiment preparation of Diazonium salt		Lecture, practical part and discussion	Surprise tests
Week 4 October	2	First month exam			
Week 1 November	2	Experiment preparation of Aspirin		Lecture, practical part	Surprise tests

				and discussion	
Week 2 November	2	Experiment to Isolation Caffeine from Tea		Lecture, practical part and discussion	Surprise tests
Week 3 November	2	Experiment preparation of Soap		Lecture, practical part and discussion	Surprise tests
Week 4 November	2	Experiment preparation of Azo Dyes		Lecture, practical part and discussion	Surprise tests
Week 1 December	2	Experiment preparation of Aniline		Lecture, practical part and discussion	Surprise tests
Week 2 December	2	Second month exam			
Week 3 December	2	Experiment preparation of Benzoic acid		Lecture, practical part and discussion	Surprise tests
Week 4 December	2	Experiment preparation of Sulfanilic acid		Lecture, practical part and discussion	Surprise tests

11. Course Evaluation

Students are evaluated throughout the semester according to the following criteria:

- First month exam from 4/ Second month exam from 4/ Daily exam and attendance and participation from 2
- (Theoretical effort from 30 + practical effort from 10) effort from 40
- Final exam from 60
- Final grade from 100

12. Learning and Teaching Resoures

Required textbooks(curricular books, if any)	- Basics of Organic Chemistry. Written by: Dr. Muhammad Nizar.

	- Experiments in Organic Chemistry - University of Kufa - College of Science - Department of Chemistry 2015. Written by: M.M. Asaad Hashim Anid and his group.
Main references(sources)	• John McMurry "Organic Chemistry" 9th Edition Cengage Learning, USA (2016).
Recommended books and references (scientific journais, reports…)	• John McMurry "Organic Chemistry with Biological Applications" 3rd Edition Cengage Learning, USA (2015).
Electronic references, websites	Google searching for Organic Chemistry

Course Description Form

1. Course Name:	
Coordination Chemistry-3	
2. Course Code:	
3. Semester / Year:	
First Semester/2024	
4. Description Preparation Date:	
9/9/2024	
5. Available Attendance Forms:	
Face to Face (compulsory)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
28	
7. Course administrator's name (mention all, if more than one name)	
Name: Ghazi Ibrahim Abbas Abd-ulwahab Email: ghazi92chemist@tu.edu.iq	
8. Course Objectives	
Course Objectives	- The student will be familiar with some basic concepts in coordination chemistry. At the end of the stage, the student will be able to name coordination compounds, identify coordination complexes, hybridize coordination compounds, geometric shapes of complexes, magnetic properties of isomers formed by these compounds and know the theories that explain coordination complexes.
9. Teaching and Learning Strategies	
Strategy	- A performance evaluation form according to a standard that depends on the nature of the scientific material. - Works within group work. - Tests (written and oral). - General and transferable qualification skills (other skills related to employability and personal development).

	- Training students to use modern teaching methods and techniques, including integrated education using technology. - Multimedia. - Assigning students to conduct research related to the fields of scientific material. - Enabling students to use their personal skills.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 3 September	2	Introduction to Coordination Chemistry		Lecture, discussion and Power point	Surprise tests
Week 4 September	2	Chain theory in the development of chemistry		Lecture, discussion and Power point	Surprise tests
Week 1 October	2	Werner's theory and types of ligands		Lecture, discussion and Power point	Surprise tests
Week 2 October	2	Naming coordination complexes		Lecture, discussion and Power point	Surprise tests
Week 3 October	2	Valence bond theory in coordination complexes		Lecture, discussion and Power point	Surprise tests
Week 4 October	2	First month exam			
Week 1 November	2	Hybridization and geometric shapes		Lecture, discussion and Power point	Surprise tests
Week 2 November	2	Geometric isomers of coordination complexes		Lecture, discussion and Power point	Surprise tests
Week 3 November	2	Electronic configuration and physical properties of transition elements		Lecture, discussion and Power point	Surprise tests
Week 4 November	2	Effective atomic number rule		Lecture, discussion and Power point	Surprise tests

Week 1 December	2	Crystal field theory		Lecture, discussion and Power point	Surprise tests
Week 2 December	2	Second month exam			
Week 3 December	2	Jean Teller's deformity		Lecture, discussion and Power point	Surprise tests
Week 4 December	2	Molecular orbital theory		Lecture, discussion and Power point	Surprise tests

11. Course Evaluation

Students are evaluated during the semester according to the following principles:

- First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10
- Pursuit of 40
- Final exam of 60
- Final score out of 100

12. Learning and Teaching Resoures

Required textbooks(curricular books, if any)	Fundamentals of coordination chemistry - Al-Azhar University - Faculty of Science - Department of Chemistry
Main references(sources)	Inorganic chemistry; Chatherine E.Houscroft and Alan G.Sharpe
Recommended books and references (scientific journais, reports…)	- Inorganic Chemistry Transition Elements - Coordination Principles Authored by: Dr. Naaman Saad Al-Din Al-Naimi and his group. - Coordination Chemistry. Authored by: Dr. Essam Gerges
Electronic references, websites	Google searching for Coordination Chemistry

Course Description Form

1. Course Name: Practical Coordination chemistry
2. Course Code: The Third stage is chemistry
3. Semester / Year: Chapter I
4. Description Preparation Date: **9/9/2024**
5. Available Attendance Forms: class lectures
6. Number of Credit Hours (Total) / Number of Units (Total) 28/ hours
7. Course administrator's name (mention all, if more than one name)
Name: Heba saad asal Email: heba.s.asal@tu.edu.iq
8. Course Objectives

Course Objectives	The student will be familiar with some basic concepts in coordination chemistry. At the end of the stage, the student will be able to name coordination compounds, identify coordination complexes, hybridize coordination compounds, geometric shapes of complexes, magnetic properties of isomers formed by these compounds and know the theories that explain coordination complexes.

9. Teaching and Learning Strategies

Strategy	A performance evaluation form according to a standard that depends on the nature of the scientific material. - Works within group work. - Tests (written and oral). - General and transferable qualification skills (other skills related to employability and personal development). - Training students to use modern teaching methods and techniques, including integrated education using technology. - Multimedia. - Assigning students to conduct research related to the fields of scientific material. - Enabling students to use their personal skills.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
september, third week	2	Introduction to Coordination Chemistry		**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
september, fourth week	2	General Guidelines for Using Glassware and Laboratory Handling		**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
October, first week	2	Preparation of Coordination Complexes		**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**

October, second week	2	Nomenclature of Coordination Complexes		**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
October, third week	2	Experiment One: Preparation of Copper Complexes		**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
October, fourth week	2	**the first exam**			
The first week of November	2	Preparation of Cobalt Complexes		**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
November, second week	2	Geometric Isomers of Coordination Complexes		**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**

November, third week	**2**	Preparation of Cis and Trans Isomers of Chromium Complexes		**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
November, fourth week	**2**	**Second exam**			

11. Course evaluation

First month's exam out of 5 / Second month's exam out of 5 / Gather and divide by 2.

Daily exam and attendance and participation in the practical part out of 5.

(The theoretical effort out of 30 + the practical part out of 10)

We extract from it the final effort grade out of 40.

The final exam is written out of 60.

The final grade is out of 100.

12. Learning and Teaching Resoures

Required textbooks(curricular books, if any)	Fundamentals of coordination chemistry - Al-Azhar University - Faculty of Science - Department of Chemistry
Main references(sources)	Inorganic chemistry; Chatherine E.Houscroft and Alan G.Sharpe
Recommended books and references (scientific journais, reports…)	- Inorganic Chemistry Transition Elements - Coordination Principles Authored by: Dr. Naaman Saad Al-Din Al-Naimi and his group.

	- Coordination Chemistry. Authored by: Dr. Essam Gerges
Electronic references, websites	Google searching for Coordination Chemistry

Course Description Form

1. Course Name:
Industrial Chemistry- Petrochemicals (Theoretical)
2. Course Code:
3. Semester / Year:
Second Semester
4. Description Preparation Date:
2024-2025
5. Available Attendance Forms:
In-person classroom lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
24 hours
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer Dr. Safaa Hussein Mohammed **Email**: safaa.mohamed@tu.edu.iq

8. Course Objectives	
Course Objectives	Second Semester:1. To study the primary raw materials of petrochemicals, natural gas, and manufactured gas.2. To study petrochemicals produced from paraffin, petrochemicals produced from olefins, butadiene, acetylene, and materials manufactured from (BTX).3. Student's knowledge of the primary raw materials of petrochemicals.4. Knowledge of natural gas and manufactured gas and distinguishing between them.5. Knowledge of petrochemicals produced from paraffins.6. Knowledge of important productive industries in various industrial fields.

9. Teaching and Learning Strategies	
Strategy	Using standard methods (lectures) / discussion method / problem-solving method

10 Course Structure		Second Semester			
Week	**Hours**	**Required learning outcomes**	**Unit Or Subject Name**	**Learning methods**	**Evaluation methods**
Week 4 (January)	2	Industrial Chemistry (Petrochemicals)	Petrochemicals, Industrial Processes, Oil: Definition, Origin, and Sources	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 1 (February)	2	Industrial Chemistry (Petrochemicals)	Iraqi Oil Fields, Crude Oil Composition	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (February)	2	Industrial Chemistry (Petrochemicals)	Crude Oil Classification, Crude Oil Extraction Methods	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 3 (February)	2	Industrial Chemistry (Petrochemicals)	Crude Oil Feedstocks, Economic Importance of Oil and Gas	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 4 (February)	2	Industrial Chemistry (Petrochemicals)	Gas Extraction, Gas Composition and Sources	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 1 (March)	2	Industrial Chemistry (Petrochemicals)	Fractional Distillation of Oil, Refining, Separation	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (March)	2	Second Semester Exam			
Week 3 (March)	2	Industrial Chemistry (Petrochemicals)	Physical and Chemical Properties of Crude Oil, Purification, Chemical Processes Affecting	Paper lectures, presentation screen, whiteboard and	Daily exams, monthly exams, homework

			Crude Oil	pen	
Week 4 (March)	2	Industrial Chemistry (Petrochemicals)	Soap Manufacturing	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 1 (April)	2	Industrial Chemistry (Petrochemicals)	Fertilizer Manufacturing	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (April)	2	Industrial Chemistry (Petrochemicals)	Cement Manufacturing	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 3 (April)	2	Industrial Chemistry (Petrochemicals)	Paper Manufacturing	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 4 (April)	2	Industrial Chemistry (Petrochemicals)	Sugar Manufacturing	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 1 (May)	2	Industrial Chemistry (Petrochemicals)	Hydrogen Production	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (May)	2	Industrial Chemistry (Petrochemicals)	Methanol and Ethanol Production	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: First month exam out of 20/ Second month exam out of 20/ Daily exam and attendance and participation out of 20)Theoretical effort out of 30 + practical effort out of 10) effort out of 40 Final exam out of 60 Final grade out of 100

Main references (sources)	
Recommended supporting books and references (scientific journals, reports...)	Book of Small Chemical Industries \ Mohamed Ahmed Al-Sayed Khalil
Electronic references, Internet sites	Book of Industrial Chemistry \ M. Noman Kazem Khader

Course Description Form

1. Course Name:
Parasitology
2. Course Code:
Parasitology
3. Semester / Year:
First Semester, Courses System
4. Description Preparation Date:
September 2024
5. Available Attendance Forms:
Classroom Lectures
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. Muhanad Hamed Salih Email: muhanad.h.salih@tu.edu.iq
8. Course Objectives

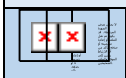
Here is the translation of your text into English:

- Introduction to the importance of parasitology and its relation to other sciences.
- Developing students' skills in identifying parasites.
- Understanding the benefits and harms of parasites.
- Understanding the life cycles of parasites.
- Recognizing the environments that transmit parasites.
- Diseases caused by parasites.

9. Teaching and Learning Strategies

Using the standard method (lecturing) / Discussion method / Problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	Here is the translation of your phrase into English: "Basics and General Concepts in the World of Parasitology"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
2	2	Here is the translation of your phrase into English: "Different Relationships Between Living Organisms"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports

3	2	Here is the translation of your phrase into English: "True Parasitism and Adaptation in Parasites"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
4	2	Here is the translation of your phrase into English: "Sources of Parasitic Infections"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
5	2	Here is the translation of your phrase into English: "Pathological Effects Caused by Parasites"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
6	2	First Month Exam			
7	2	Here is the translation of your phrase into English: "Prevention of Parasitic Diseases"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
8	2	Here is the translation of your phrase into English: "Parasitic Protozoa An Overview"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
9	2	Here is the translation of your	Parasitology	Display screen, whiteboard,	Exams & reports

		phrase into English: "Intestinal Parasitic Protozoa"		and pen.	
10	2	Here is the translation of your phrase into English: "Intestinal Flagellates	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
11	2	Here is the translation of your phrase into English: "Intestinal Ciliates"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
12	2	Here is the translation of your phrase into English: "Protozoa Parasitic on Blood and Tissues"	Parasitology	Display screen, whiteboard, and pen.	Exams & reports
13	2	Second Month Exam			

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: • 30 marks for the first midterm exam. • 30 marks for the second midterm exam. • The average of the two midterm exam marks. • 10 marks for daily tests, attendance, and participation. • 40 marks for the student's annual effort. • 60 marks for the final exam. • The final grade for the student including the annual effort is 100

12. Learning and teaching resources	
Here is the translation of your phrase into English: "Parasitology World, Dr. Murid Yani Hanna, 2018	Not applicable
"Parasitology, Dr. Ismail Abu Assaf, 2005	Main references (sources).
Medical Parasitology, Dr. Walter Beck and Dr. John Davies, 2010	Recommended supporting books and references (scientific journals, reports, etc.).Edition
Specialized Topics Internet Websites from Google Search"	Electronic references, websites

Course Description Form

1. Coursename
(Parasitology (practical
2.Course code
(Parasitology (practical
3.Semester/Year
/ One Chapter
4.Date this description was prepared
2024/09/08

Available forms of attendance .5	
In person(weekly)	
6.(of study hours (total) / Number of units (total Number	
hours 26	
7.Course Administrator Name	
Name: Asistant Lac. Abdullah Mahmoud Ajil . Email : abdullah.m.ajil@tu.edu.iq	
8.Course objectives	
• . Parasites view of some-Eye • .the internal structure of parasites Study of • and its Parasitology of importance Definition .other sciences relationship to • .Developing students' skills in knowing parasites • .Learn about the life cycles of parasites • .know the media that transmit parasites Do not • . caused by parasites seasesDi	Subject objectives
9.Teaching and learning strategies	
Use the standard method (lecturing) / discussion method / problem solving method	Strategy

10.Course Structure

Evaluation method	ning Lear method	Name of the unit or topic	Required learning outcomes	Watches	The week
Daily, monthly exams, homework	Paper lecture, projection screen, whiteboard and pen, electron ,microscope slides	Parasites forms and observation	• Basics and general concepts in the world of parasites • Watching its shapes and movements	2	The third week of September
Daily, monthly	Paper lecture,	Amoebiasis coli & tissue	Identify colon and tissue	2	fourth week of

exams, homework	projection screen, whiteboard n, and pe electron microscope, slides	amoebiasis	amoebiasis, study its internal structure, life cycle and diagnostic .methods		September
Daily, monthly exams, meworkho	Paper lecture, projection screen, whiteboard and pen, electron microscope, slides	gum amoebiasis	Study of amoeba structure, life cycle and presence	2	First week October
Daily, monthly exams, homework	Paper lecture, projection screen, whiteboard and pen, electron microscope, slides	fragile double amoeba	Study of amoeba structure, life cycle and presence	2	The second week October
Daily, monthly exams, homework	Paper lecture, projection screen, whiteboard and pen, electron microscope, slides	amoebiasis dysentery	he Study of t structure of amoeba, its life cycle, its presence, the diseases it causes and its .diagnosis	2	The third week October
nth examFirst mo				2	Week 4 October
Daily, monthly ams, ex homework	Paper lecture, projection screen,	Classification of parasites and the diseases they	Knowing the classification of parasites and the	2	First week November

	whiteboard and pen, electron microscope, slides	cause	diseases they cause		
Daily, monthly exams, homework	Paper lecture, projection ,screen whiteboard and pen, electron microscope, slides	Study the shape and size of the parasite and the most important organs that distinguish it	Knowing the shape and size of the parasite and what organelles distinguish each parasite	2	The second week November
Daily, monthly exams, homework	Paper lecture, projection ,screen whiteboard and pen, electron microscope, slides	intestinal flagellates	Knowing what intestinal flagellates are, how they live, and diagnosing them in the laboratory	2	The third week November
Daily, monthly exams, homework	Paper lecture, projection screen, whiteboard and pen, electron microscope, slides	Visual observation of parasites or through sdrawing	The student observes parasites and how to distinguish between them under a microscope or through .drawings	2	Week 4 November
Daily, monthly exams, homework	Paper lecture, ction proje screen, whiteboard and pen, electron	giardia parasite	Knowing what this parasite is, how it lives, and diagnosing it in the laboratory	2	First week December

	microscope, slides				
Daily, monthly exams, homework	Paper lecture, ojection pr screen, whiteboard and pen, electron microscope, slides	Protozoa that parasitize blood and tissues	**Student knowledge of blood flagellates and methods of laboratory diagnosis**	2	The second week December
Second month exam				2	The third week December

11.Course Evaluation	
Students are evaluated during the semester according to the following criteria: - Daily exam and / 6 Second month exam from / 6 onth exam fromFirst m 4 attendance and participation from - 10 Quest of - 15 Final exam from	
12 .Learning and teaching resources	
Parasitologist Dr. Mourid Yanni Hanna 2018	(Required textbooks (methodology if any
Parasitology Dr. Ismail Abu Assaf 2005	(eferences (SourcesMain R
Medical Parasitology Dr. Walterbeck and Dr. John Davis 2010	Recommended supporting books and (...references (scientific journals, reports
s fromSpecialized topic website google search	Electronic references, websites

Course Description Form

1. Course Name:
Natural Products
2. Course Code:
Natural Products .....
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
10-9-2024
5. Available Attendance Forms:
In attendance (weekly)
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: Assistant Professor Dr. Hamid Mohammed Saleh Email: altlwhbdalwahd @gmail.com
8. Course Objectives

1. Introduction to Plant Production:
2. Definition of agriculture and types of crops.
3. Impact of soil on plant growth.
4. Modern agricultural techniques (such as organic farming).
5. Water management and irrigation, as well as pest control.
6. Animal Production:
7. Economic importance of animal husbandry.
8. Study of domestic animal types and their nutritional needs.
9. Management of animal health and care.
10. Integration of Plant and Animal Production:
11. Role of animal production in improving crop productivity.
12. Integrated farming systems and their environmental impact.

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Learning Outcomes	Topic or Unit Name	Learning Method	Assessment Method
1	2	Understand the basic concepts of animal and plant production.	Introduction to Animal and Plant Production.	Lectures + Discussions	Daily assignments + Oral questions
2	2	Understand the basics of crop cultivation and animal breeding.	Basics of Crop Cultivation and Animal Breeding.	Lectures + Case Studies	Daily assignments
3	2	Learn the primary factors affecting agricultural and livestock productivity.	Factors Affecting Productivity.	Lectures + Practical Activities	Reports + Discussions
4	2	Explore sustainable practices for plant and animal production.	Sustainable Production Practices.	Lectures + Fieldwork	Reports + Practical Applications
5	2	Assess the understanding of the core concepts covered in the first	First Midterm Exam.	Exam	Written exam

		four weeks.			
6	2	Study the role of nutrition in plant and animal growth and productivity.	Nutrition and Productivity.	Lectures + Research Studies	Assignments + Reports
7	2	Understand the impact of environmental factors on agricultural and livestock productivity.	Impact of Environmental Factors.	Lectures + Exercises	Reports + Discussions
8	2	Learn about modern technologies used in improving plant and animal production.	Modern Technologies in Production.	Lectures + Practical Activities	Assignments + Interactive Questions
9	2	Analyze the economic aspects of plant and animal production.	Economic Aspects of Production.	Lectures + Data Analysis	Reports + Discussions
10	2	Comprehensive review of concepts and practices related to animal and plant production.	Comprehensive Review.	Lectures + Review Sessions	Daily assignments + Short tests
11	2	Comprehensive assessment of the course through practical and applied questions.	Second Midterm Exam (End of Course).	Exam	Written exam

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Additional Details:

- Total Hours: 22 hours.
- Overall Evaluation:
  - First Midterm Exam (Week 5): 20%.
  - Second Midterm Exam (Week 11): 30%.
  - Reports and Practical Activities: 30%.
  - Attendance and Participation: 20%.

This plan provides an integrated approach to delivering the course, combining theoretical and practical aspects to ensure the achievement of the required learning outcomes.

Course Description Form

1. Course Name:
Practical Physiology

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

2. Course Code:
3. Semester / Year:

Course system/first semester

4. Description Preparation Date:

2024/9/12

5. Available Attendance Forms:

In attendance (weekly)

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: Assistant teacher. Abdulmunem Kurdi Abdullah Email: Abdulmu.k019@tu.edu.iq	Name:Dr Raghda Mahmood hamad Email: raghada.hamad21@tu.edu.iq

8. Course Objectives

Course Objectives	12. Learn about physiology and its applications. 13. Learn about safety procedures inside the laboratory. 14. Learn about methods of obtaining samples. 15. Learn about methods of performing physiological tests. 16. Learn about methods of conducting physiological experiments such as sugar and blood percentage...etc.

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 3 September	2	Physiology and its applications	Introduction to physiology, types of samples and how to obtain them.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 September	2	Laboratory safety procedures	Laboratory safety procedures, waste disposal	Paper lecture Display Screen Blackboard	Daily and monthly exams, homework

				and pen	
Week 1 October	2	Light microscope	A practical experiment that demonstrates a process on a pond sample to teach how to use a microscope.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 October	2	Get samples	A practical experience on the process of blood withdrawal and how to obtain samples for experiments	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 October	2	blood smear	A practical demonstration of how to perform a blood smear.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 October	2	First-month exam			
Week 1 November	2	Blood types	A practical experiment that demonstrates how to identify blood type.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 November	2	Hematocrit	Scientific experiment showing how to measure blood percentage	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 November	2	ESR	Practical experiment to measure the sedimentation time of blood cells	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 November	2	Urine and its components	Practical experiment to examine a urine sample under a microscope	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

Week 1 December	2	white blood cell count	Practical experiment to count white blood cells under a microscope	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 December	2	Second month exam			
Week 3 December	2	Overview, Practical Physiology	Physiology	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - Students are evaluated during the semester according to the following principles: - First month exam from 10 / Second month exam from 10 / Daily exam, attendance and participation from 10 divided by 3 - (Practical pursuit of 10 + theoretical pursuit of 30) Striving of 40 - Final exam of 60 ..... - Final score out of 100 ....

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Practical Experiments Guide Book by Dr. Muhammad Abdul-Wali Al-Hijami / Sana'a University
Primary references (sources)	Animal Physiology Book - Practical Experiments Guide Dr. Muhammad Abdul-Wali Al-Hijami / Sana'a University
Recommended supporting books and references (scientific journals, reports...)	Specialized topic websites from google search

CourseDescriptionForm

1. CourseName:
Animal Physiology
2. CourseCode:
Animal Physiology (Theoretical)
3. Semester/ Year:
First Semester / Course-Based System
4. DescriptionPreparationDate:
10/9/ 2024
5.AvailableAttendanceForms:
In-person (Weekly)
6.NumberofCreditHours(Total)/NumberofUnits (Total)
30 hours
7.Courseadministrator'sname(mentionall,ifmorethanonename)
Name: Mostafa Qahtan Mostafa
8. Course Objectives

Course Objectives	Help students understand animal physiology, its definition, and the most important physiological processes in animals. - Prepare specialized scientific personnel in the field of life sciences to enhance the educational reality in the country. - Provide the Ministry of Education with qualified and specialized personnel in life sciences.

9. Teaching and Learning Strategies	
The strategy	Use of electronic visual aids. - Employ discussion methods during lectures between the professor and students. - Assign students research and reports. - Provide students with assignments related to the course content.

10. Course Structure

Week	Hours	Unit/Topic Name	Learning Outcomes	Learning Method	Evaluation Method
1	2	Introduction to Animal Physiology	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

2	2	Temperature Regulation	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
3	2	Body Fluids	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
4	2	Nervous System	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
5	2	Neural Signal Transmissions	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
6	2	Muscular System	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
8	2	Vascular System	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
9	2	Heart Rate Control	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
10	2	Urinary System	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
11	2	Endocrine Glands	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

12	2	Digestive System	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Attendance participation duties of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Animal Physiology – Functions of the Animal Body (John Cleland) - Animal Physiology (William Benjamin) - Animal Physiology (Omar Abdul-Majeed Mohammed)
Primary references (sources)	.....
Recommended supporting books and references (scientific journals, reports...)	Specialized websites related to the topics (Google search).

CourseDescriptionForm

1. CourseName:
Plant physiology
2. CourseCode:
Plant physiology (Theoretical)
3. Semester/ Year:

Second t Semester / Course-Based System

4. DescriptionPreparationDate:

10/1, 2025

5.AvailableAttendanceForms:

In-person (Weekly)

6.NumberofCreditHours(Total)/NumberofUnits (Total)

30 hours

7.Courseadministrator'sname(mentionall,ifmorethanonename)

Name: Mostafa Qahtan Mostafa

8. Course Objectives

Course Objectives	Help students understand Plant physiology , its definition, and the most important Plant physiology. - Prepare specialized scientific personnel in the field of life sciences to enhance the educational reality in the country. - Provide the Ministry of Education with qualified and specialized personnel in life sciences.

9. Teaching and Learning Strategies

The strategy	Use of electronic visual aids. - Employ discussion methods during lectures between the professor and students. - Assign students research and reports. - Provide students with assignments related to the course content.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	Plant cell	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
2	2	Water properties	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
3	2	Solution	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
4	2	Water absorption	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
5	2	Transpiration	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

6	2	Xylem and phloem juicer	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
8	2				Vascular System
9	2	Photosynthesis	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
10	2	Nutrient element	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
11	2	Plant hormones	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
12	2	Germination	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
1	2	Seeds dormancy	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

11. Course Evaluation

Students are evaluated during the semester according to the following principles:

- First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10
- (Theoretical pursuit of 30 + Attendance participation duties of 10) Pursuit of 40
- Final exam of 60
- Final score out of 100

12. Learning and teaching resources

Required textbooks (methodology, if any)	Plant physiology
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	Specialized websites related to the topics (Google search).

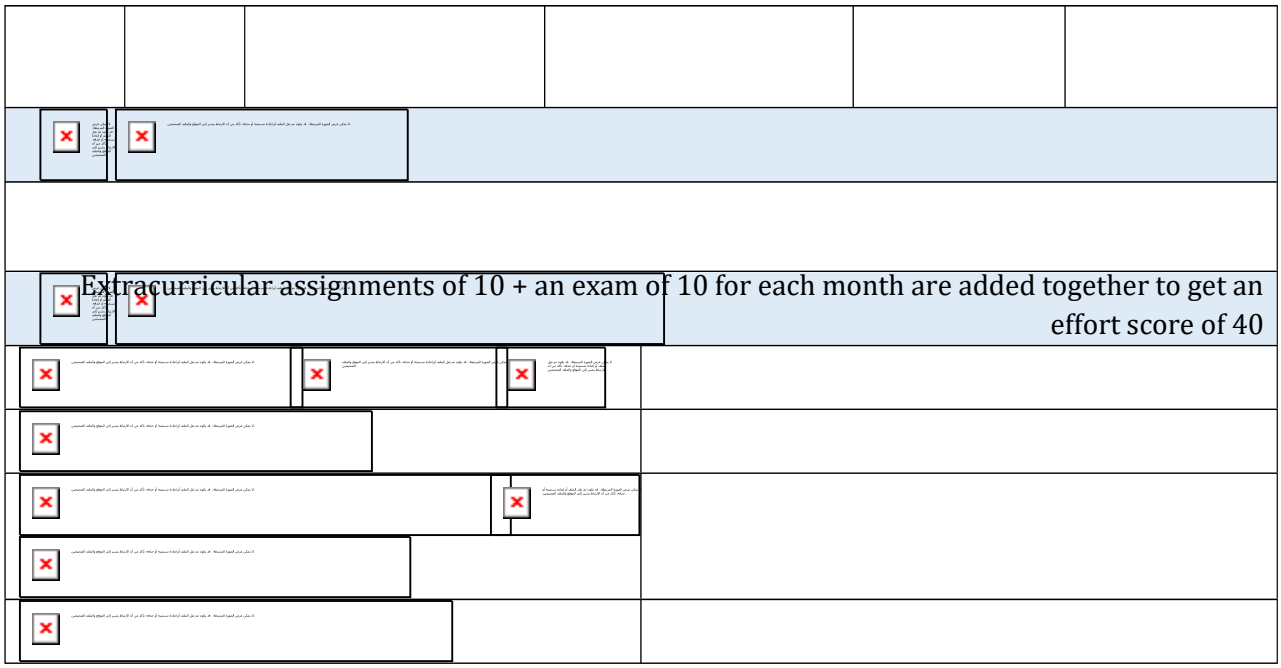
Course Description Form

1. Course Name:
Research Methodology
2. Course Code:
Not found
3. Semester / Year:
First 2024 - 2025
4. Description Preparation Date:
9 - 9 - 2024
5. Available Attendance Forms:
Attendance record
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours – 2 units/hour
7. Course administrator's name (mention all, if more than one name)
Prof. Dr. Ali Ahmed Ghadib ali.ahmed@tu.edu.iq
8. Course Objectives
The research methods course aims to enable the learner to: 1) Identify the skill of scientific research 2) Conclude a solution to a research problem that serves the community. 3) Identify the concept of what scientific research is. 4) Identify educational situations and their relationship to scientific research.
9. Teaching and Learning Strategies
1- Lecture method 2- Discussion method

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
First	2	Understanding the stages of reaching knowledge	Science and Scientific Research	presence	Daily - Monthly Tests
Second	2	Understanding the most	What is Science	presence	Daily - Monthly

		important goals of science and the characteristics of research			Tests
Third	2	Understanding the hypotheses and variables of research	Educational Research and its Steps	presence	Daily - Monthly Tests
Fourth	2	Understanding the ethical aspect of scientific research	Ethical Considerations in Educational Research	presence	Daily - Monthly Tests
Fifth	2	Recognizing the types of research and their characteristics	Classification of Research	presence	Daily - Monthly Tests
sixth	first month exam				
Seventh	2	Identifying the types of research and their characteristics	Experimental research	presence	Daily - Monthly Tests
Eighth	2	Understanding the sources of obtaining the problem	Research problem and hypotheses	presence	Daily - Monthly Tests
Ninth	2	Understanding the study individuals and sampling methods	Review of literature related to the research problem	presence	Daily - Monthly Tests
Tenth	2	Questionnaire, interview, observation	Data collection tools	presence	Daily - Monthly Tests
Eleventh	2	How to prepare a report	Preparing a research report	presence	Daily - Monthly Tests
twelfth	Second month exam				



Course Description Form

1. Course Name:
General teaching methods
2. Course Code:
Theoretical General teaching methods
3. Semester / Year:
First semester/ third stage/ 2024_2025 .....
4. Description Preparation Date:
14/09/2024 .....
5. Available Attendance Forms:
In-person (Weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
45 hours, (3) Units
7. Course administrator's name (mention all, if more than one name)
Name: Assistant teacher Layth Jamal Khalaf Email: layth.j.khalaf@tu.edu.iq
8. Course Objectives

Course Objectives	• Familiarize yourself with the concept of teaching, its elements and terminology. • Identify the classification of teaching methods in the educational process. • Identify the concept of the automatic method, its conditions, steps and types. • Identify the concept of the interrogation method, its conditions, types, pros and cons. • Identify the concept of the method of discussion, its conditions, types and steps. • Identify the concept of the discovery method, its types, steps and advantages. • Recognize the concept, steps, and justifications of the Flipped Learning Method. • Familiarize yourself with the concept, steps, and features of the collaborative learning method. • Identify the concept of the brainstorming method, its forms, stages and obstacles. • Identify the concept of role-playing, peer teaching, and differentiated teaching.

9. Teaching and Learning Strategies

Strategy	Utilizing diverse teaching methods, including: Lecture method, Discussion method, Problem-solving method, Cooperative learning, Modern active learning strategies.

10. Course Structure

	Hours	**Unit or subject**	**Required Learning Outcomes**		**Evaluation method**
Fourth week of September	3	Teaching1	The concept of teaching, its elements.	• Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
First week of October	3	Teaching2	Teaching terms, classification of teaching methods, method standards.	• Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
Second week of October	3	Directive method	The concept of the method, conditions, steps, types, advantages, disadvantages.	• Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments

Third week of October	3	Interrogative method	The concept of the method, conditions, importance, types, positives, negatives.	• Paper lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fourth week of October	3	Discussion method	The concept of the method, conditions, types, steps, advantages, disadvantages.	• Paper lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fifth week of October	3	Discovery method	The concept of the method, types, steps, advantages, disadvantages.	• Paper lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of November	3	The first-month exam			
Second week of November	3	Flipped learning method	Method concept, principles, steps, justifications, teacher's role, learner's role.	Paper lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Third week of November	3	Cooperative learning method	Method concept, principles, steps, advantages, difficulties.	Paper lecture Projection screen Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments

Fourth week of November	3	Role playing method.	Method concept, patterns, steps, advantages, elements.	Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
Fifth week of November	3	Peer teaching method.	Method concept, types, conditions, steps, benefits, obstacles.	Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
First week of December	3	Brainstorming method.	Method concept, principles, forms, stages, advantages, obstacles.	Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
Second week of December	3	Differentiated teaching method.	Method concept, forms, fields, steps, importance, justifications.	Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
Third week of December	3	The Second-month exam			
Fourth week of December	3	General review of the prescribed curriculum		• Paper lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams

11. Course Evaluation	
"Students are assessed during the semester according to the following criteria: First-month exam: 15% Second-month exam: 15% Daily exams, attendance, and participation: 10% (The annual grade is now out of 40) Final exam: 60% Final grade: 100%"	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if available)	1. Ibrahim, Fadel Khalil. (2010). Introduction to General Teaching Methods. 2. Saada, Jawdat Ahmed. (2018). General Teaching Methods and Their Educational Applications.
Primary References (Sources)	Abdel-Azim, Sabry Abdel-Azim. (2015). General teaching strategies and methods.
Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)	Salim Ibrahim Al Khazraji. (2011). "Contemporary Methods in Teaching Science." Mohamed Nagib Mustafa. (2006). "Teaching Methods in Science: Between Theory and Application."
Electronic References, Internet Websites	Websites related to specialized topics from Google search, Google Scholar, Wikipedia: ..... Google Search: Link to Google Search Google Scholar: Link to Google Scholar Wikipedia: Link to Wikipedia

Course Description Form

1. Course Name:
Soil chemistry

2. Course Code:
Soil chemistry
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
12-1-2025
5. Available Attendance Forms:
In attendance (weekly)
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. Abdulwahid AbdulSattar Talouh Email: altlwhbdalwahd @gmail.com
8. Course Objectives

Course Objectives	A- Cognitive Objectives: Providing the student with sufficient information to gain expertise in working with analytical chemistry. Equipping the student with the knowledge of various laboratory instruments and modern techniques. Providing the student with sufficient knowledge to keep up with and study modern sciences, including analytical chemistry.
9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

W Course Description	Hours	Outcomes	Program and name	Learning method	Evaluation method
1	2	Importance of Soil Chemistry in Agriculture	- Understand the concept of soil chemistry and its significance.	- Theoretical lecture and group discussion.	Daily, monthly exams, homework

11. Course Evaluation

2	2	Soil Components	- Identify the basic components of soil and their impact on fertility.	- Use of diagrams and visual aids.	Daily and monthly exams, homework
3	2	Chemical Processes in Soil	- Explain the chemical and physical reactions occurring in soil.	- Presentation and open discussion.	Daily and monthly exams, homework
4	2	Soil Types and Impact of Acidity/Alkalinity	- Classify soil types and analyze the effect of pH on plant growth.	- Case study with practical application.	Daily and monthly exams, homework
5	2	Soil Types and Impact of Acidity/Alkalinity	- Classify soil types and analyze the effect of pH on plant growth.	- Case study with practical application.	Daily and monthly exams, homework
6	2	First-month exam			
7	2	Primary and Secondary Soil Minerals	- Identify primary and secondary minerals and their impact on soil fertility.	- Lecture supported with real mineral samples.	Daily and monthly exams, homework
8	2	Organic Matter in Soil	- Explain the role of organic matter in enhancing soil fertility.	- Lecture with practical application of organic matter analysis.	Daily and monthly exams, homework
9	2	Chemical Fertilizers and Their Impact	- Analyze the impact of chemical fertilizers on soil chemical structure.	- Group discussion with practical examples.	Daily and monthly exams, homework
10	2	Ion Exchange Phenomenon	- Explain the concept of ion exchange and its importance in plant nutrition.	- Practical session using ion exchange models.	Daily and monthly exams, homework
13	2	Second month exam			

Students are evaluated during the semester according to the following principles:

- First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10
- (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40
- Final exam of 60
- Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

Course Description Form

1. Course Name: Theoretical biochemistry
2. Course Code: The third stage is chemistry
3. Semester / Year: Chapter II
4. Description Preparation Date:**10 /1/2025**
5. Available Attendance Forms: In-person class lectures
6. Number of Credit Hours (Total) / Number of Units (Total) **28**/ hours
7. Course administrator's name (mention all, if more than one name)
Name: Heba saad asal Email: heba.s.asal@tu.edu.iq
8. Course Objectives

Course Objectives	1-For the student to learn about the nature of biochemistry and the important biomolecules in the body, and to study their details. 2-Studying important life molecules in the bodies of living organisms such as humans, such as carbohydrates, fats, proteins, and amino acids. 3-Study the details of the compounds mentioned and distinguish between them. 4-Knowing how to write the structural formulas of these compounds and their important interactions. 5-The student's knowledge of the functions of these compounds and their

	importance to the health of the human body.

9. Teaching and Learning Strategies

Strategy	Using the lecture method and using the interactive whiteboard through explanation and clarification. Providing students with the basics and additional topics related to the outcomes of biochemical thinking and analysis. Asking students to write objective reports about some life molecules with the aim of learning and knowing the research method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
january, first week	2	**Introducing the student to biochemistry .Its importance in our lives**	**Introduction to biochemistry**	**Lecture and discussion**	**Class performance**
january, second week	2	**Introducing the student to molecules and life, models of living cells, properties and functions of cell parts. With hydrocarbons and their types**	**Biomolecules and living cells**	**Lecture and discussion**	**Class performance**
february, 1week	2	**Familiarize the student with the characteristics Water, solutions, and dissolution of compounds Polarity and ion concentration calculations Hydrogen and**	**Water and solutions**	**Lecture and discussion**	**Class performance**

		measurement curve Al-Calibration			
februa ry, 2 week	2	**Introducing the student to carbohydrates Its importance, composition, classification, types .and characteristics**	**Carbohydrates**	**Lecture and discussion**	**Class performance**
februa ry, 3week	2	**Introducing the student to monosaccharides Its types, cyclic structure, and effectiveness Visual**	**Monosaccharide s**	**Lecture and discussion**	**Class performance**
februa ry, 4week	2	**Introducing the student to interactions Monocarbohydrates are the most important Monosaccharides and their derivatives**	**Monocarbohydr ate reactions and their most important types**	**Lecture and discussion**	**Class performance**
march, 1 week	2	**Student definition of limited sugars oligosaccharides units (Disaccharides, sugars Many units .polysaccharides**	**Complex sugars**	**Lecture and discussion**	**Class performance**
march, week2	2	**the first exam**	**First month exam**	**Lecture and discussion**	**Class performance**

March, week 3	2	**Fats, their properties and importance, Its composition, classification, types and functions**	**Fats**	**Lecture and discussion**	**Class performance**
march, week4	2	**Simple fats , Triglycerides Oils, fatty acids, Phospholipids**	**Types of fats**	**Lecture and discussion**	**Class performance**
April, week1	2	**Proteins, their structure and classification Plasma proteins, changing characteristics General proteins**	**Proteins**	**Lecture and discussion**	**Class performance**
April 2week	2	**Second exam**	**Second month exam**	**Lecture and discussion**	**Class performance**

11.Course evaluation	
First month exam from 15 / Second month exam from 15 / Add and divide by 2. Oral exam, daily preparation, attendance and participation of 10 + 15 marks, practical part. We extract from it a pursuit score of 40 The final written exam is 60 The final grade is 100	
12.Learning and teaching resources	
Introduction to biochemistry / Dr. Khawla Ahmed Biochemistry./ Dr. Sami Al-Mudhafer Al-Wajeez in Biochemistry./ Dr. Qusay Al-Chalabi	Required textbooks (methodology, if (any)
1- Harpers Revew of Biochemistry, - Principle of Bio 2 Chemistry, Smith &White 3- Biochemistry by Armstrong	(Main references (sources)
Biochemistry book, part one / Dr. Tariq Younis	Recommended supporting books and (...references (scientific journals, reports
www.bytoco.com	Electronic references, Internet sites

Course Description Form

1. Course Name: Practical biochemistry
2. Course Code: The third stage is chemistry
3. Semester / Year: Chapter II
4. Description Preparation Date:**10/1/2025**
5. Available Attendance Forms: class lectures
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: Heba saad asal Email: heba.s.asal@tu.edu.iq
8. Course Objectives

Course Objectives	1-For the student to learn about the nature of biochemistry and the important biomolecules in the body, and to study their details. 2-Studying important life molecules in the bodies of living organisms such as humans, such as carbohydrates, fats, proteins, and amino acids. 3-Study the details of the compounds mentioned and distinguish between them. 4-Knowing how to write the structural formulas of these compounds and their important interactions. 5-The student's knowledge of the functions of these compounds and their

	importance to the health of the human body.

9. Teaching and Learning Strategies

Strategy	Using the lecture method and using the interactive whiteboard through explanation and clarification. Providing students with the basics and additional topics related to the outcomes of biochemical thinking and analysis. Asking students to write objective reports about some life molecules with the aim of learning and knowing the research method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
january, first week	2	**Introducing the student to biochemistry .Its importance in our lives**	**Introduction to biochemistry**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
january, second week	2	**Introducing the student to molecules and life, models of living cells, properties and functions of cell parts. With hydrocarbons and their types**	**Biomolecules and living cells**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
february, 1week	2	**Familiarize the student with the characteristics Water, solutions, and dissolution of compounds Polarity and ion concentration calculations**	**Water and solutions**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**

		Hydrogen and measurement curve Al-Calibration			
februa ry, 2 week	2	**Introducing the student to carbohydrates Its importance, composition, classification, types .and characteristics**	**Carbohydrates**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
februa ry, 3week	2	**Introducing the student to monosaccharides Its types, cyclic structure, and effectiveness Visual**	**Monosaccharide s**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
februa ry, 4week	2	**Introducing the student to interactions Monocarbohydrates are the most important Monosaccharides and their derivatives**	**Monocarbohydr ate reactions and their most important types**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
march, 1 week	2	**Student definition of limited sugars oligosaccharides units (Disaccharides, sugars Many units .polysaccharides**	**Complex sugars**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**

march, week2	2	**the first exam**	**First month exam**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
March, week 3	2	**Fats, their properties and importance, Its composition, classification, types and functions**	**Fats**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
march, week4	2	**Simple fats , Triglycerides Oils, fatty acids, Phospholipids**	**Types of fats**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
April, week1	2	**Proteins, their structure and classification Plasma proteins, changing characteristics General proteins**	**Proteins**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
April 2week	2	**Second exam**	**Second month exam**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**

11.Course evaluation	
First month exam from 10 / Second month exam from 10 / Add and divide by 2. Oral exam, daily preparation, attendance and participation in the practical part and conduct experiments of 5 + 25 marks, practical part. We extract from it a pursuit score of 40 The final written exam is 60 The final grade is 100	
12.Learning and teaching resources	
Introduction to biochemistry / Dr. Khawla Ahmed Biochemistry./ Dr. Sami Al-Mudhafer Al-Wajeez in Biochemistry./ Dr. Qusay Al-Chalabi	Required textbooks (methodology, if any)
1- Harpers Revew of Biochemistry, - Principle of Bio 2 Chemistry, Smith &White 3- Biochemistry by Armstrong	(Main references (sources)
Biochemistry book, part one / Dr. Tariq Younis	Recommended supporting books and (...references (scientific journals, reports
www.bytoco.com	Electronic references, Internet sites

Course Description Form

1. Course Name:	
Industrial Chemistry- polymers (Theoretical)	
2. Course Code:	
3. Semester / Year:	
First Semester	
4. Description Preparation Date:	
2024-2025	
5. Available Attendance Forms:	
In-person classroom lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
24 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Lecturer Dr. Safaa Hussein Mohammed **Email**: safaa.mohamed@tu.edu.iq	
8. Course Objectives	
Course Objectives	First Semester:1. To introduce polymers, their types, nomenclature, methods of obtaining them, and differentiating between them.2. Understanding what a polymer is.3. Understanding polymer nomenclature.4. Understanding polymer types.5. Understanding and differentiating between methods of preparing polymers and knowing polymer uses.6. Polymer classification.7. Polymer reactions.8. Polymer applications.
9. Teaching and Learning Strategies	
Strategy	Using standard methods (lectures) / discussion method / problem-solving method

10 Course Structure			**First semester**		
Week	**Hours**	**Required Learning**	**Unit Or Subject Name**	**Learning Method**	**Evaluation methods**

		Outcomes			
Week 1 (October)	2	Industrial Chemistry (Polymers)	Polymers, Polymer Classification	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (October)	2	Industrial Chemistry (Polymers)	Polymer Nomenclature	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 3 (October)	2	Industrial Chemistry (Polymers)	Polymer Classification, Source, Type	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 4 (October)	2	Industrial Chemistry (Polymers)	Technological Classification of Polymers	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 1 (November)	2	Industrial Chemistry (Polymers)	Classification According to Polymer Structure	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (November)	2	Industrial Chemistry (Polymers)	Classification According to Reactions	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 3 (November)	2	First Semester Exam			
Week 4 (November)	2	Industrial Chemistry (Polymers)	Factors Affecting Polymers, Factors on Which Polymers Depend	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 1 (December)	2	Industrial Chemistry (Polymers)	Degree of Crystallinity, Glass Transition Temperature	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 2 (December)	2	Industrial Chemistry (Polymers)	Chain-Growth Polymerization	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 3 (December)	2	Industrial Chemistry (Polymers)	Step-Growth Polymerization	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework
Week 4 (December)	2	Industrial Chemistry (Polymers)	Ziegler-Natta Polymerization	Paper lectures, presentation screen, whiteboard and pen	Daily exams, monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: First month exam out of 20/ Second month exam out of 20/ Daily exam and attendance and participation out of 20)Theoretical effort out of 30 + practical effort out of 10) effort out of 40 Final exam out of 60

Final grade out of 100	
12. Learning and teaching resources	Book of Chemistry of Macromolecules / Korkis Abdul Al Adam
Required textbooks (methodology if any)	Book of Chemical Industries \ Dr. Ahmed Madhat Islam

Course Description Form

1. Course Name:
Measurement and Evaluation
2. Course Code:
Measurement and Evaluation (theoretical)
3. Semester / Year:
Second semester/ third stage/ 2024_2025
4. **Description Preparation Date:**
20/01/2025
5. Available Attendance Forms:
In-person (Weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Ali Ahmed Ghaidhaib .....   **Email:** ali.ahmed@tu.edu.iq .....
8. Course Objectives

Course Objectives	Understand the concepts of measurement and evaluation and their importance in the educational process. Clarify the differences between measurement, evaluation, and testing, and the significance of each in education. Analyze the purposes of measurement and evaluation and link them to improving education quality. Classify types of educational evaluation and their practical applications in teaching. Apply the basic steps for preparing classroom tests according to measurement standards. Design a specification table linking educational objectives to course content. Assess the quality of tests through the analysis of validity, reliability, and effectiveness.

	Develop comprehensive reports on evaluation results and use them for decision-making in education. Use different measurement methods to analyze student performance and evaluate curricula. Enhance skills in preparing measurement tools that meet the requirements of various educational scenarios.

9. Teaching and Learning Strategies

Strategy	Utilizing diverse teaching methods, including: Lecture method, Discussion method, Problem-solving method, Cooperative learning, Modern active learning strategies.

10. Course Structure

Week	Hours	Unit or subject	Required Learning Outcomes	Learning method	Evaluation method
Fourth week of September	3	Introduction to Measurement and Evaluation	Define the concept of measurement. Explain the importance of measurement and evaluation in the educational process.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of October	3	Purposes of Measurement and Evaluation	Identify the purposes of measurement and evaluation in education. Explain the role of measurement in improving education quality.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Second week of October	3	Types of Measurement and Evaluation	Classify types of evaluation (formative, summative, diagnostic). Discuss examples of each type.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments

Third week of October	3	Basic Steps in Test Preparation	Define educational objectives. Formulate behavioral objectives.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fourth week of October	3	Designing a Table of Specifications	Design a specification table covering study content. Link educational objectives with learning levels.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fifth week of October	3	Classroom Tests	Define characteristics of good classroom tests. Develop diverse questions to measure various aspects of learning.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of November	3	The first-month exam			
Second week of November	3	Curriculum Evaluation	Analyze curricula based on educational objectives. Suggest improvements to better achieve educational goals.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Third week of November	3	Psychometric Properties of Tests	Define validity and reliability in tests. Analyze the quality of test items.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fourth week of November	3	Student Performance Evaluation	Analyze students' strengths and weaknesses. Design plans to improve student performance based on evaluation results.	• Paper lecture • Projection screen • Whiteboard	• Daily exams • Monthly exams • Homework assignments

				and marker	
Fifth week of November	3	Teacher Performance Evaluation	Evaluate teacher competence based on educational outcomes. Provide recommendations to improve teaching performance.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of December	3	Methods for Analyzing Evaluation Results	Use statistics to analyze evaluation results. Interpret data obtained from tests and measurements.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Second week of December	3	Writing Evaluation Reports	Develop comprehensive reports on measurement and evaluation results. Provide recommendations based on reports.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Third week of December	3	The Second-month exam			
Fourth week of December	3	General review of the prescribed curriculum		• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams

11. Course Evaluation
"Students are assessed during the semester according to the following criteria: • First-month exam: 15% • Second-month exam: 15% • Daily exams, attendance, and participation: 10% (The annual grade is now out of 40)

• Final exam: 60% • Final grade: 100%"	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if available)	3. Ibrahim, Fadel Khalil. (2017). **Construction and Design of Psychological and Educational Tests and Measurements.**
Primary References (Sources) 4.	Al-Azzawi, Nidal Muzahim. (2012). **Evaluation and Measurement.** Abdulrahman, Ahmed Mohammed. (2011). **Test Design: Theoretical Foundations and Practical Applications.**
Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)	• Karajah, Abdul Qader. (1997). Measurement and Evaluation in Psychology. • Al-Turairi, Abdulrahman bin Suleiman. (1997). Psychological and Educational Measurement.
Electronic References, Internet Websites	Websites related to specialized topics from Google search, Google Scholar, Wikipedia: • Google Search: Link to Google Search • Google Scholar: Link to Google Scholar • Wikipedia: Link to Wikipedia

Course Description Form

1. .....

Course Name:
Teaching Methods in Science
2. Course Code:
Theoretical Teaching Methods in Science
3. Semester / Year:
The Second Semester/Third Term
Description Preparation Date:
10/01/2025
5. Available Attendance Forms:
In-person (Weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)

30 hours

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

Name: Prof. Dr. Ali Ahmed Ghaidhaib
Email: ali.ahmed@tu.edu.iq

8. Course Objectives

Course Objectives	• Understanding the concept of science, its components, objectives, and characteristics. • Practicing how to formulate educational objectives (behavioral objectives). • Educational planning and the development of lesson plans. • Familiarity with types of curriculum plans, their elements, and planning for them. • Understanding the characteristics and duties of teachers inmodern education. • Familiarity with some teaching methods specific to scienceeducation.

9. Teaching and Learning Strategies

Strategy	Utilizing diverse teaching methods, including: Lecture method, Discussion method, Problem-solving method, Cooperative learning, Modern active learning strategies.

10. Course Structure

Week	Hours	Unit or subject	Required Learning Outcomes	Learning method	Evaluation method
January	2	learning	Nature of science, its components, goals, and characteristics.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Goals	The objectives fall into two types: educational objectives and instructional (behavioral) objectives.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Planning for teaching science	Concept of planning, its importance, characteristics, principles, and assumptions.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Annual plan	Annual lesson plan and its preparation stages + (Sample of an annual lesson plan).	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Daily plan	Daily Lesson Plan and Its Preparation Elements + (Sample Daily Lesson Plan).	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
March	2	The teacher	Characteristics and Responsibilities in Modern Education.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments

March	2	The first-month exam			
March	2	Pentagonal learning cycle	Concept of the learning cycle, procedural steps, andits features	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
March	2	Hands-on approach	Concept of practical presentations, types of presentations, procedural steps, advantages, and disadvantages.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
March	2	Problem-solving method	Concept of problem-solving, procedural steps, advantages.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	Fieldwork approach	Concept of fieldwork, its importance, procedural steps.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	Think-Pair-Share strategy	Concept of strategy, procedural steps, advantages.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	Power of Thinking , 4H strategy	Concept of strategy, advantages, procedural steps, objectives, requirements.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	The Second-month exam			
May	2	General review of the prescribed curriculum		• Paper lecture Projection screen Whiteboard and marker	Daily exams • Monthly exams

11. Course Evaluation

"Students are assessed during the semester according to the following criteria: First-month exam: 15% Second-month exam: 15% Daily exams, attendance, and participation: 10% (The annual grade is now out of 40)Final exam: 60% Final grade: 100%"

12. Learning and Teaching Resources

Required Textbooks (Methodology, ifavailable)

Primary References (Sources)

Recommended Supplementary Booksand References (Scientific Journals, Reports, etc.)

Electronic References, Internet Websites

Michel Kamel Atallah. (2010). "Methods andTechniques of Teaching Science."
Abdullah bin Khamees Ambo Sa'idi. (2009)."Teaching Methods in Science - Concepts and Practical Applications."

Abdul Salam Mustafa Abdul Salam. (2001). "Modern Trends in Teaching Methods of Science."

Salim Ibrahim Al Khazraji. (2011). "Contemporary Methods in Teaching Science."
Mohamed Nagib Mustafa. (2006). "TeachingMethods in Science: Between Theory and Application."
Websites related to specialized topics fromGoogle search, Google Scholar, Wikipedia:

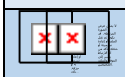
Google Search: Link to Google Search Google Scholar: Link to Google Scholar
Wikipedia: Link to Wikipedia

Course Description Form

1. Course Name:
Immunology
2. Course Code:
Immunology
3. Semester / Year:
Second semester/ year 2024-2024
4. Description Preparation Date:
2025/1/12
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
30hours

7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Mohanad Mahdi Jumaa Jandal Email: mohanad.m.jumaa91@tu.edu.iq	
8. Course Objectives	
Course Objectives	• The student will be familiar with the term immunology and the body's defense mechanisms, including autoimmunity and acquired immunity • The student will be familiar with the term phagocytosis and its mechanisms as a means of defense against pathogens • The student will be familiar with the term foreign body, the antibodies formed when the body is exposed to it, and their compositions and types • Enable the student to recognize how antibodies are used as diagnostic methods to identify the pathogen • The student knows the term histocompatibility antigens and their relationship to autoimmune diseases • Identify the term hypersensitivity and the types of allergies that form
9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	**Hours**	**Required Learning Outcomes**			**Evaluation method**
December-3	2	Immunology, Historical Overview, Types of Immunity	Immunology, historical overview, types of immunity	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
December-4	2	Immunity, Immune System, Components of the Immune System	Immunity, immune system, components of the immune system	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
February-1	2	Mechanisms of Innate, Non-Specific Immunity	Mechanisms of the	Paper lecture	Daily and

			non-specialized innate immune system	Display Screen Blackboard and pen	monthly exams, homework
February-2	2	Mechanisms of Inflammation, Purpose of the Inflammatory Process, Signs of Inflammation	Mechanisms of inflammation, goals of the inflammatory process, manifestations of inflammation	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
February-3	2	Antigens, Immunogenicity, Patterns of Antigens, Types of Antigens	Antigens, immunogenicity, types of antigens, types of antigens	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
February-4	2	January Exam			
March-1	2	Antibodies, Types of Antibodies, Chemical Structure of Antibodies	Antibodies, types of antibodies, chemical structure of antibodies	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
March-2	2	Phagocytosis, Examples of Phagocytosis, Phagocytosis Process Steps	Phagocytosis process, examples of phagocytosis, steps of the phagocytosis process	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
March-3	2	What Are the Functions of Phagocytosis, Immune System Cells	What are the functions of the phagocytosis process, cells of the immune system	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
March-4	2	Cells Involved in Innate Immunity, Cells Connecting the Innate and Adaptive Immune Systems, Adaptive Immunity, Divisions of Adaptive Immunity	Cells working in the innate immune system, cells linking the natural immune system and acquired immunity, acquired immunity, sections of acquired immunity	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
April-1	2	Antibodies, Types of Antibodies, Chemical Structure of Antibodies, Cellular Kinetics	Antibodies, types of antibodies, chemical structure of	Paper lecture Display Screen	Daily and monthly exams,

			antibodies	Blackboard and pen	homework
April-2	2	Second Month Exam			
April-3	2	Complement System, Function of the Complement System, Activation of the Complement System, Complement System Deficiency	Complement system, complement function, complement activation, complement system deficiency, Cellular kinetics	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
April-4	2	Complement System, Function of the Complement System, Activation of the Complement System, Complement System Deficiency	Complement system, complement function, complement activation, complement system deficiency, Cellular kinetics	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

11. Course Evaluation	
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 20 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	Immunology book written by Dr. Maha Raouf Al-Saad (1989)
Primary references (sources)	• Medical Microbiology and Immunology, Jawetz, 2013. • Medical Microbiology and Immunology,Warren Levinson,2016. Microbiology and Immunology ,Subhash Chandra Parija,2012
Recommended supporting books and	Scientific journals on immunity

references (scientific journals, reports...)	

Course Description Form

1. Course Name: Immunology – practical	
2. Course Code: 3rd class	
3. Semester / Year : Courses system	
4. Description Preparation Date: 13/ 1 / 2025	
5. Available Attendance Forms:Presency class lectures	
6. Number of Credit Hours (Total) / Number of Units (Total) : 39 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Assist. Lecturer : Abdulrahman Jirjees Younis+Dhuha Qahtan Taha Emai :msc.biologist91@gmail.com …..	
8. Course Objectives	
Course Objectives	• Introducing the Immunology in general and knowledge its importancein protecting the body from pathogens . •knowing the underlying causes that are related to the functioning of the immune system . •Revealing modern techniques used to diagnose the functioning of the immune system thtough practical experiments . •Identify the mechanisms of laboratory diagnosis and identify some diseases that rely on immunological laboratory diagnosis .
9. Teaching and Learning Strategies	

Strategy	Using the standard method (delivering lectures) and presenting slides via Powerpoint .

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
February first week	3	Immune system cells	Introducing the different immune system cells	Using the data show and presenting theoritical material	oral and written questions
February second week	3	Organs and tissues of the Immune system	Introducing the components of the immune system , including organs snd tissues .	Use the Data show	Quiz , oral and written questions
February third week	3	Drawing blood and injection antigens into laboratory animals	Detecting methods of injecting an antigens into laboratory animals	Use the Data show+practical experiments	Quiz , oral and written questions
February fourth week	3	Drawing blood and injection antigens into laboratory animals	. Detecting methods of injecting an antigens into laboratory animals	Use the Data show + practical experience	Quiz , oral and written questions
March first week	3	Agglutinations reactions	Pregnancy detection and blood type	Use the Data show + practical experience	Quiz , oral and written questions
March second week	3	Agglutinations reactions	Detection the presence of rheumatic factor (RF) and Widal test	Use the Data show +practical experience	Quiz , oral and written questions
March third week	3	Precipitation reactions	Introducing the patterns of precipitation reactions	Use the Data show + practical experience	Quiz , oral and written questions
March fourth week	3	Interaction between antigen and antibody	Introduction to complement fixation tests	Use the Data show +practical experience	Quiz , oral and written questions
April first week	3	ELISA test	Detection of antibodies through ELISA and its steps	Use the Data show +practical experience	Quiz , oral and written questions
April second week	3	Bacterial counting	Numerical and quantitative estimationa . live and total counting	Use the Data show +practical experience	Quiz , oral and written questions

			of bacteria		
April third week	3	Phagocytosis	Introduction the different phagocytosis cells	Use the Data show +practical experience	Quiz , oral and written questions
April fourth week	3	Inflammation	Introducing the inflammation , type and causes .	Use the Data show + theorotical material	Quiz , oral and written questions
May First week	3	Hypersensitivity	Detection of hypersensitivity reactions patterns	Use the Data show + practical experience	Quiz , oral and written questions

11.Course Evaluation	
Exam of the first month is from 10 and second month is from 10 . Attendance +participation + daily exams is from10 A degree becomes 30 in which divided by 3 . the average is extracted from 10 .	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Nothing
Main references (sources)	Stevens Christen Dorresteyn. (2010). Clinical immunology and serology: a laboratory perspective / Christen Dorresteyn Stevens. 3rd ed . Mary Louis Turgeon . 2014. Immunology and serology medicine 4th ed .
Recommended books and references (scientific journals , reports ...)	Review of Medical Microbiology and Immunology .Levinson. Journal of clinical immunology .
Electronic References , Websites	Google Search . Pubmed. Google scholar

Course Description Form

1. Course Name
Plant classification
2. Course Code
3. Semester/Year
Second Semester / 2024 - 2025
4. Date of preparation of this description
10/1/2025
5. Available Attendance Forms
In person (weekly)
6. Number of credit hours (total) / number of units (total)
26 hours
7. Course Administrator Name
Name: Dr. Muhannad Hamad Saleh Saeed Email: muhanad.h.salih@tu.edu.iq
8. Course Objectives
- Developing the student's ability to identify the varieties of plants widely cultivated in the world and Iraq. 2- Preparing the student to identify the most productive crop varieties. 3- Preparing the student to be

able to classify plants well. 4- Enabling the student to make decisions independently (without dependency) when classifying plants. 5- Preparing the student to gain good experience in the field of plant classification. 6- Preparing the student the ability to implement some projects (not alone but in cooperation with others) in the field of plant classification.	

9. Teaching and learning strategies

Strategy	Use the standard method (lecturing) / discussion method / problem solving method

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Third week January	2	Classification of different plants that can be grown under different environmental conditions.	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Fourth week January	2	Identify the importance of taxonomy and its relationship with other sciences.	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
First week February	2	The goal and importance of plant taxonomy	Plant classification	Paper lecture Display screen	Daily exams, monthly, homework

				Blackboard and pen	
Second week February	**2**	The relationship of taxonomy with the rest of the other sciences.	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Third week February	**2**	Leaf Modification	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
First month exam					
First week of March	**2**	Types of roots	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Second week March	**2**	Reproduction in plants	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Third week of March	**2**	Types of Flowers	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Fourth week of March	**2**	Flower symmetry	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
First week April	**2**	Watching the classification of plants, identifying them and	Plant classification	Paper lecture Display	Daily exams, monthly, homework

		methods of propagation in the field.		screen Blackboard and pen	
Second week April	2	Florescences and inflorescences	Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Third week April	2		Plant classification	Paper lecture Display screen Blackboard and pen	Daily exams, monthly, homework
Second month exam					

11. Course Evaluation
Students are evaluated during the semester according to the following principles: First month exam from 20 / second month exam from 20 / daily exam and attendance and participation from 10 Quest of 40 Final exam out of 60 Final score out of 100

12. Learning and Teaching Resources	
Plant taxonomy	Required textbooks (methodology, if any)
Plant classification lectures	Key references (sources)
Google Search specialized topic	Electronic references, websites

websites	

Course Description Form

1. Course Name:
Measurement and Evaluation
2. Course Code:
Measurement and Evaluation (theoretical)
3. Semester / Year:
Second semester/ third stage/ 2024_2025
4. **Description Preparation Date:**
20/01/2025
5. Available Attendance Forms:
In-person (Weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: Assistant teacher Layth Jamal Khalaf ..... **Email: layth.j.khalaf@tu.edu.iq** .....
8. Course Objectives

Course Objectives	Understand the concepts of measurement and evaluation and their importance in the educational process. Clarify the differences between measurement, evaluation, and testing, and the significance of each in education. Analyze the purposes of measurement and evaluation and link them to improving education quality. Classify types of educational evaluation and their practical applications in teaching. Apply the basic steps for preparing classroom tests according to measurement standards. Design a specification table linking educational objectives to course content. Assess the quality of tests through the analysis of validity, reliability, and effectiveness.

	Develop comprehensive reports on evaluation results and use them for decision-making in education. Use different measurement methods to analyze student performance and evaluate curricula. Enhance skills in preparing measurement tools that meet the requirements of various educational scenarios.

9. Teaching and Learning Strategies

Strategy	Utilizing diverse teaching methods, including: Lecture method, Discussion method, Problem-solving method, Cooperative learning, Modern active learning strategies.

10. Course Structure

Week	Hours	Unit or subject	Required Learning Outcomes	Learning method	Evaluation method
Fourth week of September	3	Introduction to Measurement and Evaluation	Define the concept of measurement. Explain the importance of measurement and evaluation in the educational process.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of October	3	Purposes of Measurement and Evaluation	Identify the purposes of measurement and evaluation in education. Explain the role of measurement in improving education quality.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Second week of October	3	Types of Measurement and Evaluation	Classify types of evaluation (formative, summative, diagnostic). Discuss examples of each type.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments

Third week of October	3	Basic Steps in Test Preparation	Define educational objectives. Formulate behavioral objectives.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fourth week of October	3	Designing a Table of Specifications	Design a specification table covering study content. Link educational objectives with learning levels.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fifth week of October	3	Classroom Tests	Define characteristics of good classroom tests. Develop diverse questions to measure various aspects of learning.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of November	3	The first-month exam			
Second week of November	3	Curriculum Evaluation	Analyze curricula based on educational objectives. Suggest improvements to better achieve educational goals.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Third week of November	3	Psychometric Properties of Tests	Define validity and reliability in tests. Analyze the quality of test items.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Fourth week of November	3	Student Performance Evaluation	Analyze students' strengths and weaknesses. Design plans to improve student performance based on evaluation results.	• Paper lecture • Projection screen • Whiteboard	• Daily exams • Monthly exams • Homework assignments

				and marker	
Fifth week of November	3	Teacher Performance Evaluation	Evaluate teacher competence based on educational outcomes. Provide recommendations to improve teaching performance.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
First week of December	3	Methods for Analyzing Evaluation Results	Use statistics to analyze evaluation results. Interpret data obtained from tests and measurements.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Second week of December	3	Writing Evaluation Reports	Develop comprehensive reports on measurement and evaluation results. Provide recommendations based on reports.	• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams • Homework assignments
Third week of December	3	The Second-month exam			
Fourth week of December	3	General review of the prescribed curriculum		• Paper lecture • Projection screen • Whiteboard and marker	• Daily exams • Monthly exams

11. Course Evaluation
"Students are assessed during the semester according to the following criteria: • First-month exam: 15% • Second-month exam: 15% • Daily exams, attendance, and participation: 10% (The annual grade is now out of 40)

• Final exam: 60% • Final grade: 100%"	
12. Learning and Teaching Resources	
Required Textbooks (Methodology, if available)	4. Ibrahim, Fadel Khalil. (2017). **Construction and Design of Psychological and Educational Tests and Measurements.**
Primary References (Sources)	□ Al-Azzawi, Nidal Muzahim. (2012). **Evaluation and Measurement.** □ Abdulrahman, Ahmed Mohammed. (2011). **Test Design: Theoretical Foundations and Practical Applications.**
Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)	• Karajah, Abdul Qader. (1997). Measurement and Evaluation in Psychology. • Al-Turairi, Abdulrahman bin Suleiman. (1997). Psychological and Educational Measurement.
Electronic References, Internet Websites	Websites related to specialized topics from Google search, Google Scholar, Wikipedia: • Google Search: Link to Google Search • Google Scholar: Link to Google Scholar • Wikipedia: Link to Wikipedia

Course Description Form

1. .....

Course Name:
Teaching Methods in Science
2. Course Code:
Theoretical Teaching Methods in Science
3. Semester / Year:
The Second Semester/Third Term
Description Preparation Date:
10/01/2025
5. Available Attendance Forms:
In-person (Weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)

30 hours

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

Name: Assistant teacher Layth Jamal Khalaf
Email: layth.j.khalaf@tu.edu.iq

8. Course Objectives

Course Objectives	• Understanding the concept of science, its components, objectives, and characteristics. • Practicing how to formulate educational objectives (behavioral objectives). • Educational planning and the development of lesson plans. • Familiarity with types of curriculum plans, their elements, and planning for them. • Understanding the characteristics and duties of teachers inmodern education. • Familiarity with some teaching methods specific to scienceeducation.

9. Teaching and Learning Strategies

Strategy	Utilizing diverse teaching methods, including: Lecture method, Discussion method, Problem-solving method, Cooperative learning, Modern active learning strategies.

10. Course Structure

Week	Hours	Unit or subject	Required Learning Outcomes	Learning method	Evaluation method
January	2	learning	Nature of science, its components, goals, and characteristics.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Goals	The objectives fall into two types: educational objectives and instructional (behavioral) objectives.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Planning for teaching science	Concept of planning, its importance, characteristics, principles, and assumptions.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Annual plan	Annual lesson plan and its preparation stages + (Sample of an annual lesson plan).	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
February	2	Daily plan	Daily Lesson Plan and Its Preparation Elements + (Sample Daily Lesson Plan).	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
March	2	The teacher	Characteristics and Responsibilities in Modern Education.	• Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments

March	2	The first-month exam			
March	2	Pentagonal learning cycle	Concept of the learning cycle, procedural steps, andits features	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
March	2	Hands-on approach	Concept of practical presentations, types of presentations, procedural steps, advantages, and disadvantages.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
March	2	Problem-solving method	Concept of problem-solving, procedural steps, advantages.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	Fieldwork approach	Concept of fieldwork, its importance, procedural steps.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	Think-Pair-Share strategy	Concept of strategy, procedural steps, advantages.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	Power of Thinking , 4H strategy	Concept of strategy, advantages, procedural steps, objectives, requirements.	Paper lecture Projection screen Whiteboard and marker	Daily exams Monthly exams • Homework assignments
April	2	The Second-month exam			
May	2	General review of the prescribed curriculum		• Paper lecture Projection screen Whiteboard and marker	Daily exams • Monthly exams

13. Course Evaluation

"Students are assessed during the semester according to the following criteria: First-month exam: 15% Second-month exam: 15% Daily exams, attendance, and participation: 10% (The annual grade is now out of 40)Final exam: 60% Final grade: 100%"

14. Learning and Teaching Resources

Required Textbooks (Methodology, ifavailable)

Primary References (Sources)

Recommended Supplementary Booksand References (Scientific Journals, Reports, etc.)

Electronic References, Internet Websites

Michel Kamel Atallah. (2010). "Methods andTechniques of Teaching Science."
Abdullah bin Khamees Ambo Sa'idi. (2009)."Teaching Methods in Science - Concepts and Practical Applications."

Abdul Salam Mustafa Abdul Salam. (2001). "Modern Trends in Teaching Methods of Science."

Salim Ibrahim Al Khazraji. (2011). "Contemporary Methods in Teaching Science."
Mohamed Nagib Mustafa. (2006). "TeachingMethods in Science: Between Theory and Application."
Websites related to specialized topics fromGoogle search, Google Scholar, Wikipedia:

Google Search: Link to Google Search Google Scholar: Link to Google Scholar
Wikipedia: Link to Wikipedia

Course Description Form

1. Course Name:
Environmental and Health Education
2. Course Code:
Environmental and Health Education (Theoretical)
3. Semester / Year:
The Second Semester/2025 ....
4. Description Preparation Date:
13/1/2025
5. Available Attendance Forms:
In-person (Weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: Assistant teacher Irfan Wasmi Mahmoud Email: irfan_wasmi@tu.edu.iq

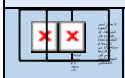
8. Course Objectives

Course Objectives	• Introduction to the importance of environmental and health education and its role in daily life. • Familiarizing students with the fundamental concepts of environmental health. • Understanding the principles and rules of individual health and safety. • Introducing healthy habits for individuals and addressing ways to overcome unhealthy habits. • Providing an introduction to first aid. • Explaining epidemics resulting from pollution and harm to public health.

9. Teaching and Learning Strategies

Strategy	Utilizing the standard method (lecture delivery). Feedback-based approach. Discussion and dialogue method. Problem-solving approach.

10. Course Structure

	**Hours**	**Required Learning Outcomes**			**Evaluation method**
January	2	- Definition of Environmental Education - Objectives of Environmental and Health Education - Concept of Health - Public Health - Components of Public Health - Objectives of Public Health	The concept of public health and its principles	- Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments
February	2	- Concept of Family Health - Maternal and Child Care - Objectives of Maternal and Child Care	Family health A	Paper-based lecture Projection screen Whiteboard and marker	• Daily exams Monthly exams • Homework assignments

February	2	- Curriculum for Maternal Health Care Before Pregnancy - Child Care	Family health B	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
February	2	- ・ Concept of School Health - ・ Objectives of School Health - ・ School Health Services - ・ Importance of Breaks Between Classes - ・ The Role of Teachers in the Health Care of their Students	School health	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
February	2	- Nutrients - Functions of Food - Vitamins	Nutrition A	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	- Symptoms of Malnutrition in Children - Diseases of Malnutrition - Food Poisoning	Nutrition B	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	The first-month exam			
March	2	- Pulmonary Tuberculosis - Asthma - Whooping Cough - Diarrhea - Polio (Poliomyelitis)	Communicable diseases	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments

March	2	- Swine Flu (H1N1 Influenza) - AIDS (Acquired Immunodeficiency Syndrome)	Infectious diseases	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
March	2	- Smoking - Alcohol - Drug Addiction - Taking Medications without Consultation with a Doctor	Some harmful habits Their impact and the diseases they cause	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	- Duties of a First Responder - Bandaging - Tourniquets - Wounds - Bleeding	First aid	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	- Fractures - Burns - Epilepsy (Seizures) - Drowning	First aid	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	- Home Pharmacy - Contents of the Pharmacy	Home pharmacy	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams Homework assignments
April	2	The Second-month exam			
May	2	- Introducing the student to environmental and health education and its importance - In-depth study about food, types of diseases, and first aid	General review of the prescribed curriculum	Paper-based lecture Projection screen Whiteboard and marker	Daily exams Monthly exams

11. Course Evaluation
Students are assessed during the semester based on the following criteria:
First-month exam: 25% Second-month exam: 25% Daily exams, attendance, and participation: 15% (The semester's grade is now out of 40) Final exam: 60% Final grade: 100%

12. Learning and Teaching Resources	
Required Textbooks (Methodology, if available)	Environmental Health: From Global to Local, 3rd Edition
Primary References (Sources)	Title: "Environmental Psychology" Authors: Ali Askar, Mohammed Al-Ansari Location: Kuwait Publisher: Dar Al-Buhooth Al-Ilmiyah Edition: 1st Year: 1983
Recommended Supplementary Books and References (Scientific Journals, Reports, etc.)	Title: "The Problem of Environmental Pollution and the Role of Education in Confronting it" Author: Fadia Hamed Thesis Type: Master's Thesis College: Faculty of Education University: Al-Minufiya University Year: 1990
Electronic References, Internet Websites	• https://ar.wikipedia.org/wiki • https://scholar.google.com/schhp?hl=ar

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Course Description Form

1. Course Name:
Natural Products
2. Course Code:
Natural Products
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:

10-9-2024

5. Available Attendance Forms:

In attendance (weekly)

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: Assistant Professor Dr. Hamid Mohammed Saleh

Email: altlwhbdalwahd @gmail.com

8. Course Objectives

13. Sure! Here is the translation of your points into English:
14. Understanding Foundations and Concepts: Recognizing the components of the curriculum and the role of the textbook as an educational tool.
15. Analyzing and Evaluating Curricula and Book: Acquiring skills to analyze and evaluate educational content.
16. Designing and Developing Curricula: Learning the steps to design curricula and textbooks according to the needs of learners.
17. Standards for Authoring Books: Understanding educational principles for authoring appropriate textbooks.
18. Addressing Challenges Analyzing issues in curriculum development and proposing innovative solutions.
19. Enhancing Critical Thinking: Developing the ability to evaluate curricula and books in scientific and creative ways.

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Expected Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	2	Understanding the introduction to the course and its objectives	Introduction to Books and School Curricula	Interactive lecture	Oral questions and student participation
2	2	Recognizing the history of curriculum development	History of Curriculum Development	Lecture with discussion	Short quiz or written assignment
3	2	Analyzing the components of the school curriculum	Components of the School Curriculum	Case study analysis and examples	Workshop or group activities
4	2	Understanding the fundamentals of curriculum design	Curriculum Design	Lecture with practical application	Submission of a preliminary curriculum plan
5	2	Assessing understanding of previous lectures	**First Monthly Exam**	-	Written exam
6	2	Learning strategies for teaching the curriculum	Methods of Teaching the Curriculum	Interactive lecture and discussions	Preparing a short teaching plan
7	2	Understanding how to evaluate school curricula	Evaluation of School Curricula	Case study and group discussion	Submission of a report on a specific curriculum
8	2	Understanding the role of technology in curriculum development	Technology in Curriculum Development	Slide presentation and discussion	Simple project on technology applications
9	2	Analyzing issues and challenges in curriculum design	Issues and Challenges in Curriculum Design	Open discussion and example analysis	Writing a short research paper
10	2	Applying skills learned to develop curricula	Practical Applications for Curriculum Development	Group workshop	Submission of practical projects
11	2	Evaluating knowledge gained during lectures 6-10	**Second Monthly Exam**	-	Written exam

Notes:

- **Teaching Methods**: Include interactive lectures, workshops, group discussions, and case studies.
- **Assessment Methods**: Vary between written exams, practical projects, in-class activities, and reports.
- **Flexibility**: Topics and activities can be adjusted according to students' needs.

Additional Details:

- Total Hours: 22 hours.
- Overall Evaluation:
  - First Midterm Exam (Week 5): 20%.
  - Second Midterm Exam (Week 11): 30%.
  - Reports and Practical Activities: 30%.
  - Attendance and Participation: 20%.

11. Course Evaluation

This plan provides an integrated approach to delivering the course, combining theoretical and practical aspects to ensure the achievement of the required learning outcomes.

Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

Course Description Form

1. Course Name:
Sustainable Development
2. Course Code:
Sustainable Development
3. Semester / Year:
Sustainable Development
4. Description Preparation Date:
2025/1/10
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
28 hours

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

Name: Assistant Professor. Dr. Mohammed Abdilfattah Ali
Email: mohamedgeo@tu.edu.iq

8. Course Objectives

Course Objectives	• Understanding Basic Concepts: Enhancing students' understanding of the key concepts related to sustainable development and its economic, social, and environmental dimensions. • Analyzing Challenges: Enabling students to analyze the challenges facing sustainable development at both local and global levels. • Developing Effective Strategies: Teaching students how to develop effective strategies to achieve sustainable development goals. • Enhancing Social Awareness: Increasing students' awareness of the importance of social justice and community participation in achieving sustainable development. • Encouraging Innovation: Stimulating students to think of innovative and sustainable solutions to address future development issues.

9. Teaching and Learning Strategies

The strategy	Using the standard method (lectures) involves a structured content organization. The strategy of the sustainable development curriculum is based on active learning and project-based learning, integrating technology to enhance interaction. This includes continuous assessment and community awareness, as well as developing research skills and fostering collaboration with local institutions to ensure a comprehensive educational experience

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic	Learning Method	Assessment Method
Week 1 January	2	Understand the basic concepts of sustainable development	Introduction to Sustainable Development	Theoretical Lecture	Short Quiz
Week 2 January	2	Analyze the historical evolution of sustainability concepts	Historical Context of Sustainable Development	Theoretical Lecture	Written Reflection
Week 1 February	2	Identify the relationship between	Economic Dimensions of	Group Discussions	Practical Report

		economy and sustainable development	Sustainable Development		
Week 2 February	2	Understand the role of social justice in development	Social Dimensions of Sustainable Development	Interactive Workshops	Practical Exam
Week 3 February	2	Recognize the importance of environmental conservation	Environmental Dimensions of Sustainable Development	Theoretical Lecture	Research Project
Week 4 February	2	Understand the global goals for sustainable development	Sustainable Development Goals 2030	Interactive Lectures	Written Exam
Week 1 March	2	Identify global and local challenges	Challenges Facing Sustainable Development	Group Discussions	Comprehensive Assessment
Week 2 March	2				
Week 3 March	2	Understand the various roles of governments in achieving development	The Role of Government in Sustainable Development	Theoretical Lecture	Short Quiz
Week 4 March	2	Recognize the importance of civil society in development	The Role of Civil Society in Sustainable Development	Interactive Workshops	Research Project
Week 1 April	2	Understand how technology contributes to sustainable development	Technology and Sustainable Development	Theoretical Lecture	Written Exam
Week 2 April	2	Explore innovative solutions and practices in sustainability	Innovations for Sustainable Development	Case Studies	Presentation
Week 3 April	2	Develop a vision for future sustainable practices	The Future of Sustainable Development	Group Discussions	Final Assessment
Week 4 April		Second month exam			

11. Course Evaluation

Students are evaluated during the semester according to the following principles: • First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10 • Pursuit of 40 • Final exam of 60 • Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	-2
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	*O'Riordan ،Timothy (1993). "The Politics of Sustainability". في Turner ،R. Kerry (المحرر). Sustainable Environmental Economics and Management: Principles and Practice. London: Belhaven Press.*
Electronic References, Websites	*Rethinking Education: Towards a global common good?* (PDF). *UNESCO. 2015. ص. 31–32 ISBN:978-92-3-100088 .* (PDF) *في -11-2018*

Course Description Form

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1. Course Name:
organic characterization
2. Course Code:
organic characterization
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
10-9-2024
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam,

26 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Abdulwahid AbdulSattar Talouh Email: altlwhbdalwahd @gmail.com	
8. Course Objectives	
Course Objectives	A- Cognitive Objectives: Providing the student with sufficient information to gain expertise in working with analytical chemistry. Equipping the student with the knowledge of various laboratory instruments and modern techniques. Providing the student with sufficient knowledge to keep up with and study modern sciences, including analytical chemistry.
9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week		Outcomes	Unit or subje name	Learning method	Evaluation method

attendance and participation from 10 - (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

Week	Hours	Unit/Topic Name	Expected Learning Outcomes	Learning Method	Assessment Method
1	2	Introduction to Chemical Diagnostics	Understand the basics of chemical diagnostics using spectroscopic methods	Interactive lectures + Discussions	Short quiz + Participation
2	2	Infrared Spectroscopy (IR): Principles and Applications	Analyze spectra and use IR spectroscopy to identify functional groups	Theoretical presentation + Practical application	Short assignments
3	2	Infrared Spectroscopy: Spectrum Interpretation	Differentiate functional groups based on absorption peaks	Solving practical examples + Group discussion	Student interpretation evaluation
4	2	Nuclear Magnetic Resonance (NMR): Principles	Explain the working mechanism of NMR and understand the	Lectures + Problem-solving exercises	Practical test

			physical principles behind it		
5	2	Nuclear Magnetic Resonance: Spectrum Interpretation	Read and analyze NMR spectra and correlate it with chemical structure	Analyzing complex examples + Practical training	**Periodic Exam**
6	2	Mass Spectrometry (MS): Principles	Recognize the fundamental principles of mass spectrometry and its use in analyzing organic compounds	Theoretical presentation + Interactive session	Oral assessment
7	2	Mass Spectrometry: Spectrum Interpretation	Interpret mass spectra and determine molecular structure through ion analysis	Practical examples + Group exercises	Analytical assignments
8	2	Integration of Spectroscopic Techniques	Use IR, NMR, and MS data to determine the chemical structure of organic compounds	Case studies + Discussions	Mini-project
9	2	Practical Examples: Analyzing Simple Organic Compounds	Practical application of analyzing organic compounds using spectroscopic	Workshops + Hands-on training	Student performance evaluation

			data		
10	2	Practical Examples: Analyzing Complex Compounds	Analyze compounds with complex structures using multiple techniques	Advanced case studies + Group discussions	Final report submission
11	2	Comprehensive Review + Exam	Ensure mastery of all previous skills and concepts	Group review session	**Final Exam**

Additional Notes:

- **Learning Methods**: The course balances between theoretical lectures, solving practical examples, and hands-on applications.
- **Assessment Methods**: Include short quizzes, participation in activities, analytical report submissions, along with periodic exams.

Course Description Form .....
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1. Course Name:
Natural Products
2. Course Code:
Natural Products
3. Semester / Year:
Chapter one / 2024 - 2025
4. Description Preparation Date:
10-9-2024
5. Available Attendance Forms:

In attendance (weekly)

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. Abdulwahid AbdulSattar Talouh
Email: altlwhbdalwahd @gmail.com

8. Course Objectives

1. Definition of Chemical Products:

- Differentiation between natural and synthetic products.
- Classification of products based on their chemical nature (organic or inorganic).

2. Chemical Reactions Leading to Products:

- Types of reactions (addition, elimination, oxidation, and reduction).
- Mechanisms of reactions influencing product formation.

3. Analysis of Chemical Products:

- Physical and chemical methods to identify products.
- Use of spectroscopic tools (NMR, IR, UV-Vis) for compound analysis.

4. Designing Reactions to Obtain Target Products:

- Selecting optimal reaction conditions (temperature, catalysts, pressure).
- Controlling the yield and ratio of products.

5. Chemistry of Natural Products:

- Study of compounds derived from plants and living organisms.
- Examples: Alkaloids, terpenes, and phenols.

6. Chemistry of Industrial Products:

- Chemical products derived from petrochemical industries.
- Applications of chemical products in pharmaceutical and plastic industries.

7. Practical Applications of Chemical Products:

- Utilization of chemical products in medical and industrial fields.
- Studying economic and environmental factors associated with product manufacturing.

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week		Outcomes	Unit or subje name	Learning method	Evaluation method

Week	Hours	Unit or Topic Name	Learning Method	Assessment Method
1	2	**Introduction to Natural Products: Concept and Sources.**	Lectures + Discussions	Short quiz + Participation
2	2	**Classification of Natural Products: Alkaloids, Terpenes, Flavonoids.**	Lectures + Case Study	Short assignments
3	2	**Methods of Extraction and Separation of Natural Products.**	Lectures + Practical Activities	Student interpretation evaluation
4	2	**Structural-Functional Relationships of Natural Products.**	Lectures + Practical Applications	Practical test
5	2			
6	2	**Biochemistry of Alkaloids.**	Lectures + Research Studies	Oral assessment
7	2	**Terpenes: Structure and Applications.**	Lectures + Exercises	Analytical assignments
8	2	**Flavonoids: Structure and Applications.**	Lectures + Practical Activities	Mini-project
9	2	**Natural Products in Pharmaceuticals.**	Lectures + Data Analysis	Student performance evaluation
10	2	**General Review of Natural**	Lectures +	Final report

		Products.	Review Sessions	submission
11	2	**Final Exam**		

Additional Details:

- Total Hours: 22 hours.
- Assessment Method:
  - First Midterm Exam (Week 5): 20%.
  - Second Midterm Exam (Week 11): 30%.
  - Reports and Practical Activities: 30%.
  - Attendance and Participation: 20%.

This plan provides a comprehensive overview of topic distribution, allocated time, and the learning methods used to achieve the expected outcomes.

Additional Notes:

- Learning Methods: The course balances between theoretical lectures, solving practical examples, and hands-on applications.

Assessment Methods: Include short quizzes, participation in activities, analytical report submissions, along with periodic exams.

11. Course Evaluation
Students are evaluated during the semester according to the following principles: First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 (Theoretical pursuit of 30 + Practical pursuit of 10) Pursuit of 40 Final exam of 60 Final score out of 100

12. Learning and teaching resources	
Required textbooks	
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	

m**Course Description For**

1. Course Name:	
Instrumental analysis	
2. Course Code:	
Theoretical automated analysis	
3. Semester / Year:	
Chapter one 2024_2025	
4. Description Preparation Date:	
2024/9/9	
5. Available Attendance Forms:	
In attendance (weekly)	
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. Hassam Salah Dahkil Email: hassam.dakhil21@tu.edu.qi	
8. Course Objectives	
Course Objectives	1- Providing the student with sufficient information to gain experience in dealing with analytical chemistry. 2- Gaining experience in knowing all laboratory devices and modern technologies. 3- Gaining sufficient information to keep up with and study modern sciences, including analytical chemistry.
9. Teaching and Learning Strategies	

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 3 September	2	Introduction to instrumental analysis, electromagnetic spectrum spectral ranges	Addressing a general introduction to the types of analysis, and comparing them with other types of analysis.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 September	2	Optical components, spectrum sources, radiation filters	Study of the components of the device for spectroscopy	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 October	2	Optical detectors, automatic calibration methods	Discussing the types of detectors and which one is best. the numbe	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 October	2	UV-Visible Absorption Lambert-Beer Law	Explain the principle of operation of ultraviolet spectroscopy	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 October	2	Determinants of Lambert-Beer's Law	Study of Lambert-Beer's Law of Compliance and Types of Determinants	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 October	2	Devices used to measure ultraviolet-visible radiation	Comparison between single-band and dual-band device	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 November	2	First-month exam			

Week 2 November	2	UV-Vis Spectroscopy Applications	Addressing some applications of visible ultraviolet rays	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 November	2	Luminescence spectroscopy, fluorescence and phosphorescence spectroscopy	Explanation of fluorescence and phosphorescence spectra and their couplings with emission	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 November	2	Infrared spectroscopy, devices used	Explaining the principle of infrared rays and the type of device used	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 December	2	Infrared spectroscopy, its quantitative applications	Study its quantitative applications and benefits	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 December	2	Second month exam			

11. Course Evaluation

Students are evaluated during the semester according to the following principles:

- First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 20
- (Theoretical pursuit of 40) Pursuit of 40
- Final exam of 60
- Final score out of 100

12. Learning and teaching resources

Required textbooks (methodology, if any)	**Skoog D. ,Fundamentals of Analytical Chemistry,Nitnth ed., 2016**

Primary references (sources)	**1-Gary D.Chritian,Analytical Chemistry,fifth editionjohn Willy & sons,inc, 1986.** **2- Modern of Analytical Chemistry, Daived 2000**
Recommended supporting books and references (scientific journals, reports...)	Dr. Abdul Mohsen Abdul Hamid Al-Haidari, Instrumental Analysis Chemistry

Course Description Form

1. Course Name: clinical biochemistry	
2. Course Code: The fourth stage is chemistry	
3. Semester / Year: Chapter I	
4. Description Preparation Date: **9/9/2024**	
5. Available Attendance Forms: class lectures	
.....	
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: Heba saad asal Email: heba.s.asal@tu.edu.iq	
8. Course Objectives	
Course Objectives	1- For the student to understand what clinical chemistry is, the diagnosis of prominent diseases, the study of normal levels of chemical

	components present in the human body, the changes that occur in the case of illness, and methods for measuring and diagnosing them in the laboratory. 2- The study of important biological molecules in living organisms such as humans, including carbohydrates, fats, proteins, and amino acids, in addition to studying the biochemical reactions in the body. 3- Studying the details of the mentioned compounds and distinguishing between them. 4- Measuring the normal levels of the previous components and comparing them with the changes in the case of illness to identify the changes occurring in the aforementioned components and diagnose the disease. 5- The student's knowledge of the functions of these compounds and their importance to human body health

9. Teaching and Learning Strategies	
Strategy	Using the lecture method and using the interactive whiteboard through explanation and clarification. Providing students with the basics and additional topics related to the outcomes of biochemical thinking and analysis. Asking students to write objective reports about some life molecules with the aim of learning and knowing the research method.

10. Course Structure

	Hours	Required Learning			Evaluation

		Outcomes			method
septem ber, week 3	2	Definition of the student in clinical chemistry and its importance in our lives.	Introduction to Clinical Chemistry	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
septem ber, week4	2	Definition of the student regarding the main fluids present in the human body, starting with the first type of fluid, which is urine. What is the benefit of urine testing, and what diseases can be diagnosed through i	Body Fluids	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
Octobe r, first week	2	Definition of the student about the characteristics of blood and how to distinguish it from other fluids. What is the benefit of conducting blood tests, and what diseases can be diagnosed through them	Urinalysis	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
Octobe r, week 2	2	Definition of the student regarding the components of blood, their types, and their characteristics, along with an explanation of blood viscosity and why anticoagulants are	What is Blood	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**

		added to samples. What is the difference between plasma and .serum			
October, week 3	2	Glucose: what are its normal levels in the human body, how to diagnose the pathological condition associated with its elevation, what are its sources, and the clinical importance of glucose, along with an explanation of the two main pathological conditions associated with it: ketone bodies and acidosis.	Plasma Components of Blood	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
October, week 4	2	What are lipids, and what is the difference between liquid and solid fats? What is the importance of lipids in our bodies, and how are fats classified according to their sources? What are hydrogenated fats, and what are their harms to the human body	Glucose	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**

November , week 1	2	Definition of the student regarding the lipid compound cholesterol, its chemical structure with a diagram, its source, its clinical importance, and the diagnosis of associated diseases	Lipid s	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
November , week 2	2	**the first exam**			
November , week 3	2	**Fats, their properties and importance, Its composition, classification, types and functions**	**Fats**	**A lecture and a display screen with blackboard and pen with procedure experiences practical**	**Daily and monthly exams and homework with discussion method**
November , week 4	2	Proteins: what is the structure of protein, its chemical composition, the peptide bond and its chemical structure, the functions of proteins, their classification, the clinical importance of proteins, and the diagnosis of diseases associated with the elevation and decrease of protein in the human body	**Types of fats**	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**

December , week 1	**2**	Non-protein nitrogenous compounds: what are these compounds, with a definition of uric acid, its biological formation, its sources in the human body, and the clinical importance of uric acid along with the diagnosis of diseases associated with its elevation in the human body.	**Proteins**	**A lecture and a display screen with blackboard and pen**	**Daily and monthly exams and homework with discussion method**
December , week 2	**2**	**Second exam**			

11.Course evaluation	
First month exam from30 / Second month exam from30 / Add and divide by 2. Daily exam, attendance, and participation out of 10. (The theoretical effort out of 30 + daily attendance out of 10) From this, we derive the final effort grade out of 40. The final exam is written, out of 60. The final grade will be out of 100.	
12.Learning and teaching resources	
Introduction to biochemistry / Dr. Khawla Ahmed	**(Required textbooks (methodology, if any)**

Biochemistry./ Dr. Sami Al-Mudhafer Al-Wajeez in Biochemistry./ Dr. Qusay Al-Chalabi	
1- Harpers Revew of Biochemistry, - Principle of Bio 2 Chemistry, Smith &White 3- Biochemistry by Armstrong	**(Main references (sources)**
Biochemistry book, part one / Dr. Tariq Younis	**Recommended supporting books and (...references (scientific journals, reports**
www.bytoco.com	**Electronic references, Internet sites**

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Course Description Form

1. Course Name:
Algae and fungi
2. Course Code:
3. Semester / Year:
First Semester, Courses System
4. Description Preparation Date:
September 2024

5. Available Attendance Forms:

Classroom Lectures

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. Muhanad Hamed Salih
Email: muhanad.h.salih@tu.edu.iq

8. Course Objectives

- Identifying the general characteristics of the kingdom Fungi.
- Understanding the reproduction methods of fungi.
- Studying the life cycles of fungi.
- Diagnosing fungi and distinguishing between molds and yeasts.
- Identifying different types of algae.
- Understanding the life cycles of algae.
- Recognizing the reproduction methods of algae.

9. Teaching and Learning Strategies

Using the standard method (lecturing) / Discussion method / Problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	The general characteristics of the Kingdom Fungi	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
2	2	Spread, Forms, and	Algae and fungi	Display	Exams & reports

		Structure of Fungi Organisms"		screen, whiteboard, and pen.	
3	2	The structure and nutrition of fungi	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
4	2	The reproduction process of fungi	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
5	2	Classification of the Kingdom Fungi – Fungal Diagnosis	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
6	2	First Month Exam			
7	2	The division of fungi into gelatinous and true fungi	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
8	2	The division of fungi into Oomycota, Zygomycota, and Ascomycota.	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
9	2	The imperfect fungi, basidiomycota, and lichens.	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
10	2	Life cycle of the Ergot fungus –	Algae and fungi	Display screen,	Exams & reports

		General characteristics of algae.		whiteboard, and pen.	
11	2	Distribution, structure, and reproduction of algae.	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
12	2	Different types of algae.	Algae and fungi	Display screen, whiteboard, and pen.	Exams & reports
13	2	Second Month Exam			

11. Course Evaluation
Students are evaluated during the semester according to the following criteria: • 30 marks for the first midterm exam. • 30 marks for the second midterm exam. • The average of the two midterm exam marks. • 10 marks for daily tests, attendance, and participation. • 40 marks for the student's annual effort. • 60 marks for the final exam. • The final grade for the student including the annual effort is 100

12. Learning and teaching resources	
Nakhilan, Abdulaziz Majid (2009). **Fungi**, 1st edition. Dar Dijlah for Publishing, Amman, Jordan.	Not applicable
Ingold, C.T. (1980). **Fungal Biology**, translated by Abdel Latif Salem Ismail.	Main references (sources).
Alexopoulo,C.J. and Mims,C.W. (1989). Introductory Mycology.3rd.ed.John Wiley&Sons .Inc.New York,USA.	Recommended supporting books and references (scientific journals, reports, etc.).Edition

Specialized Topics Internet Websites from Google Search"	Electronic references, websites

Course Description Form

1. Course Name:
Algae and Fungi (Practical)
2. Course Code:
3. Semester / Year:
Course system/second semester 2024-2025
4. Description Preparation Date:
10/9/2024
5. Available Attendance Forms:
In attendance (weekly)
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: Assistant teacher Irfan Wasmi Mahmoud Email: irfan_wasmi@tu.edu.iq

8. Course Objectives	
Course Objectives	17. Identify the general characteristics of the Kingdom of Fungi. 18. Know the methods of fungal reproduction. 19. Study the life cycles of fungi. 20. Diagnose fungi and distinguish between molds and yeasts. 21. Identify the types of algae. 22. Identify the life cycles of algae. 23. Identify the methods of algae reproduction.

9. Teaching and Learning Strategies	
The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 3 September	2	Laboratory equipment, supplies and sterilization methods	Practical explanation of laboratory equipment, supplies and sterilization methods	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 September	2	General characteristics of fungi	Practical explanation of the general characteristics of fungi	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 October	2	Feeding, reproduction and use of antibiotics	An experiment to illustrate methods of feeding, reproduction and the use of antibiotics.	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 October	2	Fungal isolation	An experiment showing how to isolate fungi from different places	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 October	2	Classification of fungi	Classification of fungi	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 October	2	Medicinal mushrooms			
Week 1 November	2	First city exam		Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 November	2	Fungal Infections	Skin fungi, subcutaneous fungi	Paper lecture Display Screen	Daily and monthly exams,

				Blackboard and pen	homework
Week 3 November	2	Systemic Fungi	Examples of systemic fungi and modes of infection	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 November	2	Laboratory equipment, supplies and sterilization methods	Practical explanation of laboratory equipment, supplies and sterilization methods	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 December	2	General characteristics of fungi	Practical explanation of the general characteristics of fungi	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 December	2	Second month exam			
Week 3 December	2	Comprehensive review	Comprehensive review	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

`11. Course Evaluation
Students are evaluated during the semester according to the following principles: - Students are evaluated during the semester according to the following principles: - First month exam from 10 / Second month exam from 10 / Daily exam, attendance and participation from 10 divided by 3 - (Practical pursuit of 10 + theoretical pursuit of 30) Striving of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Mycology Book Dr. Abdul Aziz Majeed Nakheelan
Primary references (sources)	Practical Book in Plant Anatomy/Faculty of Science/Islamic University/Gaza
Recommended supporting books and references (scientific journals, reports...)	Specialized topic websites from google search

Course Description Form

1. Course Name:
Endocrine physiology
2. Course Code:
3. Semester / Year:
First semester year 2024-2025
4. Description Preparation Date:
9/ 9/2024
5. Available Attendance Forms:
In attendance (weekly)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)

Name: Dr. Mohanad Mahdi Jumaa Jandal
Email: mohanad.m.jumaa91@tu.edu.iq

8. Course Objectives

Course Objectives	24. The student will be familiar with the term endocrine physiology and the mechanisms of hormonal regulation 25. The student will be familiar with the mechanism of hormone action 26. The student will be familiar with the main endocrine glands and their functions 27. Enabling the student to identify the interaction between the endocrine system and the nervous system 28. The student will be familiar with hormonal diseases and disorders

9. Teaching and Learning Strategies

The strategy	Use the standard method (lectures), discussion method, and problem-solving method.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
Week 3 September	2	Introduction to endocrine glands, prominent scientists, hormonal regulation	Endocrine glands	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 September	2	Examples of hormonal regulation, types of hormonal secretions, examples of hormones and their effects	Hormonal regulation, hormonal secretions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 October	2	Negative feedback, mechanism of action, and examples of hormone	Control of hormone secretions	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 October	2	Positive feedback, mechanism of action,	Control of hormone secretions	Paper lecture Display	Daily and monthly

		and examples of hormone		Screen Blackboard and pen	exams, homework
Week 3 October	2	Introduction to it, target organs, parts of the pituitary gland, pituitary hormones	Pituitary gland	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 October	2	First-month exam			
Week 1 November	2	Pituitary Disorders	Pituitary gland	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 November	2	Overview, Thyroid Hormones, How the Body Regulates Thyroid Hormones, Thyroid Disorders	Thyroid gland	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 3 November	2	Overview, How Parathyroid Hormone Works, Parathyroid Dysfunction	Parathyroid gland	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 November	2	Pancreas Anatomy, Pancreas Functions, Pancreas Related Diseases, Diagnosis of Pancreatic Diseases	Pancreas	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 1 December	2	The Three Hormones Secreted by the Pancreas, How Insulin and Glucagon Affect the Metabolism of Carbohydrates, Proteins, and Fats	Pancreas	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 2 December	2	Second month exam			

Week 3 December	2	Overview, Functions, Adrenal Gland Disorders, Types of Reproductive	Adrenal gland	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework
Week 4 December	2	Hormones, Disorders Associated with Reproductive Hormones	Reproductive hormones	Paper lecture Display Screen Blackboard and pen	Daily and monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 20 - (Theoretical pursuit of 40) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Endocrine Glands and Their Hormones** Written by Dr. Mohamed El-Sayed Ali Physiology of the Endocrine Glands
Primary references (sources)	Endocrine Physiology"** by Patricia E. Molina Greenspan's Basic & Clinical Endocrinology"** by David G. Gardner and Dolores Shoback Vander's Human Physiology: The Mechanisms of Body Function"** by Eric Widmaier, Hershel Raff, and Kevin Strang
Recommended supporting books and references (scientific journals, reports...)	Scientific journals of endocrine physiology

Course Description Form

1. Course Name:

practical genetics

2. Course Code:

genetics

3. Semester / Year:

First / 2024 – 2025

4. Description Preparation Date:

8 – 9 – 2024

5. Available Attendance Forms:

Attendance record

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

30 hours – 3 units/hour

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

T.A.. Irfan Wasmi Mahmoud Email: irfan.w.mahmoud@tu.edu.iq

8. Course Objectives

The objectives of the practical genetics program are to enhance the scientific and applied understanding of genetic concepts through laboratory activities and experiments. The main objectives include the following:

1- Enhance understanding of the basic principles of genetics:

2- Develop practical skills:

3- Analyze genetic data:

4- Promote critical thinking and scientific reasoning:

5- Prepare students for advanced applied fields:

6- The impact of genetics on daily life:.

9. Teaching and Learning Strategies

Teaching and learning strategies in the practical genetics course focus on enhancing students' understanding of genetic concepts through practical experiments and effective interaction with scientific content. These strategies aim to develop students' research and application skills and enhance their ability to understand and apply theoretical concepts in a practical context.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
First	3	Mendel's First Law	Mendel's first law, the relationship between	presence	Daily - Monthly Tests

			mechanisms, backcrossing and test mating, and lethal genes.		
Second	3	Mendel's Second Law		presence	Daily - Monthly Tests
Third	3	Multiple Mechanisms	Mendel's second law,	presence	Daily - Monthly Tests
Fourth	3	Genetic Interference		presence	Daily - Monthly Tests
Fifth	3	Sex Linkage	Mating between parents differing	presence	Daily - Monthly Tests
sixth	first month exam				
Seventh	3	Pedigree Records	Pedigree records	presence	Daily - Monthly Tests
Eighth	3	Drosophila	Drosophila insect, distinguishing male and female, life cycle, mutations in this insect	presence	Daily - Monthly Tests
Ninth	3	Probability and Chi-Square		presence	Daily - Monthly Tests
Tenth	3	Examination and Analysis of the Results of	Probabilities and chi-square	presence	Daily - Monthly Tests
Eleventh	3	Mating Insects	Examination and analysis of the results of mating between insects	presence	Daily - Monthly Tests
twelfth	Second month exam				

Time is allocated for questions and answers to all inquiries during the lesson plan. There are two monthly exams and the grade is distributed as follows: 30 points for a written exam, 5 points for a daily exam with daily assignments, and 5 points for attendance.					
etc.....					
• Local references: books used by local academic institutions.					
• Basic books: such as "Physics for Scientists and Engineers" or "- Textbooks: Specialized textbooks in genetics are considered the primary sources for understanding theoretical					

CourseDescriptionForm

1. CourseName:
Immunology and Vaccines
2. CourseCode:
Immunology and Vaccines (Theoretical)
3. Semester/ Year:
First Semester / Course-Based System
4. DescriptionPreparationDate:
9/9/2024
5.AvailableAttendanceForms:
In-person (Weekly)
6.NumberofCreditHours(Total)/NumberofUnits (Total)
30 hours
7.Courseadministrator'sname(mentionall,ifmorethanonename)
Name: Mostafa Qahtan Mostafa
8. Course Objectives

Course Objectives	Assist students in understanding serums and vaccines, defining them, and recognizing the most important types of serums and vaccines. - Prepare specialized scientific personnel in the field of life sciences to enhance the educational reality in the country. - Provide the Ministry of Education with qualified and specialized personnel in life sciences.

9. Teaching and Learning Strategies

The strategy	Use of electronic visual aids. - Employ discussion methods during lectures between the professor and students. - Assign students research and reports. - Provide students with assignments related to the course content.

10. Course Structure

	Hours	Required Learning Outcomes			Evaluation method
1	2	Immunology and Vaccines	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
2	2	Human Gamma Globulin	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
3	2	Vaccines	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
4	2	Immune Adjuvants	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
5	2	Vaccine Classification	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
6	2	Issues with Killed Vaccines	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
7	2	First Monthly Exam			
8	2	Serological Tests	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
9	2	Vaccine Administration	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
10	2	Types of Vaccines	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework
11	2	Most Common Vaccines	Understanding the topic	Paper lecture, presentation,	Daily/monthly exams,

				whiteboard	homework
12	2	Vaccination	Understanding the topic	Paper lecture, presentation, whiteboard	Daily/monthly exams, homework

11. Course Evaluation
Students are evaluated during the semester according to the following principles: - First-month exam from 20 / Second-month exam from 20 / Daily exam, attendance and participation from 10 - (Theoretical pursuit of 30 + Attendance participation duties of 10) Pursuit of 40 - Final exam of 60 - Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	Immunology and Serums* by Tarek Saleh Al-Obaidi
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	Specialized websites related to the topics (Google search).

Course Description Form

1. Course Name:
Ethics of the teaching profession
2. Course Code:
3. Semester / Year:
First Semester / 2024-2025
4. Description Preparation Date:
12/9/2024

5. Available Attendance Forms:
Face to Face (compulsory)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours / 2 hours a week
7. Course administrator's name (mention all, if more than one name)
Name: Hamad Abed Mustafa Email: hamad.abd@tu.edu.iq

8. Course Objectives

Course Objectives	**This course aims to:** **1- Understand the basics of teaching ethics** **2- Understand the reading material and create a connection between its various components** **3- Increase the awareness of fourth-stage students of the laws of job discipline** **4- Understand the duties of the teacher and what his goals and advantages are** **5- Graduate cadres with a high degree of education, qualification and excellence**

9. Teaching and Learning Strategies

The strategy	-A performance evaluation form according to a standard that depends on the nature of the scientific material - Works within group work. - Tests (written) - General and transferable qualification skills (other skills related to employability and personal development) - Training students to use modern teaching methods and techniques, including integrated education using multimedia technology.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or Topic	Learning Method	Assessment Method
1	2	Introduction to Professional Ethics		Lectures and discussion	Exams and class assignments
2	2	The concept of professional ethics		Lectures and discussion	Exams and class assignments

3	2	The importance and benefits of teaching ethics		Lectures and discussion	Exams and class assignments
4	2	Principles and sources of ethics of the teaching profession		Lectures and discussion	Exams and class assignments
5	2	Teacher characteristics/effects of unethical behavior		Lectures and discussion	Exams and class assignments
6	2		EXAM1		
7	2	The concept of job discipline		Lectures and discussion	Exams and class assignments
8	2	Factors of social responsibility development			
9	2	Some unethical phenomena in the teaching profession/cheating		Lectures and discussion	Exams and class assignments
10	2				
11	2	Reasons for cheating in exams		Lectures and discussion	Exams and class assignments
12	2	The concept of bribery, its models and effects		Lectures and discussion	Exams and class assignments
13	2	Long term effects of bribery		Lectures and discussion	Exams and class assignments
14	2	Second month exam			

11. Course Evaluation
Students are evaluated during the semester according to the following principles:

- First-month exam from 15 / Second-month exam from 15 / Daily exam, attendance and participation from 10
- Pursuit of 40
- Final exam of 60
- Final score out of 100

12. Learning and teaching resources	
Required textbooks (methodology, if any)	**Archived lectures by the specialized instructors for each**
Primary references (sources)	
Recommended supporting books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course name .1
Arabic literature
Course code .2
ARB01IL212
Semester/Year .3
2025 -First / 2024
Date this description was prepared .4
2024/9/9
(Available forms of attendance: attendance (giving lectures .5
(study hours (total) / Number of units (total Number of .6
hours 48 units 48
(Name of the course supervisor (if more than one name is mentioned .7
: Email Mohamed Ibrahim Abdullah .Dr .Prof :Name

mohmmed.abdullah21@tu.edu.iq	
Course objectives .8	
objectives Subject	• Instilling a love of poetic heritage in the minds of students, especially in its golden ages. • Knowing the impact of Arabic literature on religious and social and influences on the lives of other peoples . • Identify poetic themes. • Knowing the most important poets of the era and their poetic and artistic trends. • Get to know the pictures of poets the most important • Memorizing poetic texts ....
Teaching and learning strategies .9	
Strategy	**- Lecture Monthly exam at the end of the semester**

Structure Course .10

The week	Watches	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
the first	2		A brief history of literature	The lecture	Preparation and participation
the second	4		Learn about the pre-, Islamic ,Islamic Abbasid, and modern societies.	The lecture	Preparation and participation
the third	2		Definition of some	The lecture	Preparation and

participation		literary .terms			
Preparation and participation	The lecture	Poetry and poets		2	Fourth
Preparation and participation	The lecture	-pre Islamic poets		2	Fifth
Preparation and participation	The lecture	Islamic poets		2	Sixth
First month exam	Lecture and exam	Abbasid poets		2	Seventh
Preparation and participation	The lecture	Modern poets		2	The eighth
Preparation and participation	The lecture	Arabic prose		2	Ninth
Preparation and participation	The lecture	The positions		2	tenth
Preparation and participation	The lecture	The story		2	eleventh
Second month exam	Lecture and exam	The novel		2	twelfth

1. Course name:
Educational Leadership and Management
2. Course code :
3. Chapter/Year:
Course system
4. Date this description was prepared:
2024 /9 /9
5. Available attendance forms:
In-person classroom lectures
6. Number of study hours (total):
30hours / Number of units (total): 2 units
7. Name of the course administrator (if more than one name is mentioned)
Name: Assistant Lecturer Firas Ali Abdullah Email: firas.abdullah@tu.edu.iq

8. Course Objectives

1. Introducing students to the basic concepts of leadership, its skills, and its importance in the educational environment.
2. Teaching the essential skills for effectively managing educational institutions, including planning, directing, and organizing.
3. Encouraging students to analyze educational problems and make decisions.
4. Developing the ability to evaluate institutional performance and analyze data to improve educational outcomes.

Strategy	**1- Using different teaching methods, including lectures, discussion, problem-solving, cooperative learning, and others.**

10. Course structure					
The week	**Watches**	**Name of the unit or topic**	**Required learning outcomes**	**Learning method**	**Evaluation method**
First	**2**	**Educational Leadership (Its Concept and Development)**	**Focus on Teachers and Students: Supporting teachers, assisting students, and enhancing quality in educational administration.**	**The lecture**	**Non-Classroom Assignments and Exercises**
Second	**2**	**Tasks of the Educational Leader.**	**Inherent Traits of Great Leaders: Emphasizes the innate characteristics of great leaders.**	**The lecture**	4o
Third	**2**	**Leadership Theories.**	**Distinguishing Successful Leaders: Refers to specific qualities that set successful leaders apart.**	**The lecture**	———
Fourth	**2**	**Roles of the Educational Leader.**	**Traditional and Modern Administration: Includes both traditional and modern management approaches, highlighting the importance of evaluation and quality.**	**The lecture**	

Fifth	**2**	**Types of Educational Leadership and Quality in Educational Administration.**	**Adaptability of Leaders: Relates to the leader's ability to adapt to various situations.**	**The lecture**	
Sixth	**2**	**Leadership Theories: The Great Man Theory and Trait Theory.**	**Leadership Behavior Model: Represents one of the models of leadership behavior, emphasizing the relationship between the leader and the followers.**	**The lecture**	O
Seventh	**2**	**The Situational Theory, Interactional Theory, Leadership Behavior, and the Managerial Grid Model as a Leadership Behavior Framework.**	**Diverse Roles: Includes supervision, support, and promoting quality.**	**The lecture**	
Eighth	**2**	**First-Month Exam.**		**The lecture**	يمكن أن تصدر عن ChatGPTبعض الأخطاء. لذلك يجب التحقق من المعلومات المهمة.
Ninth	**2**	**Importance of Educational Administration.**	**From Traditional to Modern Administration: Covers a range of administrative practices from traditional to modern approaches.**	**The lecture**	?
Tenth	**2**	**Types of**	**Educational**	**The**	اطا

		Educational Administration.	**Administration as a Key Element: It is a fundamental component in achieving educational goals and ensuring quality.**	**lecture**	
Eleventh	**2**	**Concept of Educational Administration.**	**Planning, Organizing, and Evaluation: Involves planning, organizing, directing, evaluating, and supervising.**	**The lecture**	**Non-Classroom Assignments and Exercises**
Twelfth	**2**	**Theories of Educational Administration.**	**Evaluation: Includes assessing managers, teachers, and students to ensure the desired curriculum outcomes are achieved.**	**The lecture**	**Non-Classroom Assignments and Exercises**
Thirteenth	**2**	**Tasks of the Manager, Evaluation, and Quality in Educational Performance.**		**The lecture**	**Non-Classroom Assignments and Exercises**
Fourteenth	**2**	**Examples of Evaluation Forms Related to (Manager Evaluation, Teacher Evaluation, and Student Evaluation).**	**Focus on Teachers and Students: Supporting teachers, assisting students, and enhancing quality in educational administration.**	**The lecture**	**Non-Classroom Assignments and Exercises**
Fifteenth	**2**	**Second-Month Exam**			

Course Evaluation .11	
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.	
Learning and teaching resources .12	
Dr. , History of Arabic Literature Shawqi Dayf.	(methodology if any) Required textbooks
Modern Arabic Literature, Faeq Hamdani-Mustafa, Salem Al.	(Main References (Sources
Iraqi International, Arab and reviewed journals-peer	Recommended supporting books and (...references (scientific journals, reports
Iraqi universities websites and basic education colleges website	Electronic references, websites

Course Description Form

11. Course Evaluation	
First-month exam out of (15) Second-month exam out of (15) Attendance, daily exam, participation, and assignments out of 10 ..... We extract from them the effort score out of 40 Final written exam out of 60 The final score is 100	
12. Learning and teaching resources	
1. مصطفى, أحمد حسن الشيخ إدريس, عبدالحليم, آلاء خالد أحمد, عبدالرحمن, إنعام عبدالرحمن حامد, ... & موسى عيسى محمد. (2017). المعادلات التفاضلية العادية من الرتبة الأولى وبعض طرق حلها وتطبيقاتها (Doctoral dissertation, جامعة السودان للعلوم و التكنولوجيا).	Required textbooks (methodology if any)

2. عباس, & عمر قاسم علي. (2016). المعادلات التفاضلية العادية من الرتبة الثانية ذات المعاملات الثابتة و المتغيرة (Doctoral dissertation, جامعة البطانة كلية الدراسات العليا).	Main References (Sources)
1.Hussain, E. A., & Abdul–Abbass, Y. M. (2018). Solving Differential Equation by Modified Genetic Algorithms. Journal of University of Babylon for Pure and Applied Sciences, 26(10), 241-233. 2. Eljaneid, N. H. E. (2004). Differntial Equations on Manifolds (Doctoral dissertation, جامعة النيلين).	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites