

**Ministry of Higher Education and Scientific Research  
Scientific Supervision and Scientific Evaluation Apparatus  
Directorate of Quality Assurance and Academic Accreditation  
Accreditation Department**



# **Academic Program and Course Description Guide**

2024\_2025

## Introduction:

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

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

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

### **Concepts and terminology:**

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

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

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

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

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

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

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

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

## Academic Program Description Form

University Name: AL\_Furat –Awsat Technical University

Faculty/Institute: Babylon Technical Institute

Scientific Department: Department of pharmacy Technologies

Academic or Professional Program Name: Department of pharmacy Technologies

Final Certificate Name: Technical diploma in pharmacy technology

Academic System: Semester

Description Preparation Date: 2025\1\21

File Completion Date: 2025\2\22

Signature: 

Head of Department Name:

Dr. Hassan Adheem Abbas

Date: 17/3/2025

Signature: 

Scientific Associate Name:

Assit Pro Dr. Oras

Khudhayer Obayes

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Assit Pro Khansaa Azeez Obayes

Date: 17/3/2025

Signature: 

المعهد التقني / بابل  
وحدة البريد المركزي  
الصادرة

Approval of the Dean

Assist. Prof. Dr. Oras Khudhayer Obayes  
Assistant Dean for Scientific Affairs and  
Postgraduate Studies  
Technical Institute of Babylon

### **1. Program Vision**

The Pharmacy Technology Department seeks to remain distinguished in preparing a distinguished cadre to work in health institutions, develop health care, scientific research, leadership and excellence in pharmaceutical education, scientific research and community service at the local, national and regional levels. The Pharmaceutical Technology Department also aspires to creativity, leadership and innovation in the field of pharmacology and pharmaceutical compounds and to advance the quality ladder to qualify a distinguished pharmaceutical technical cadre to work in various state institutions and the private sector to serve our dear country so that it takes its natural position among the countries of the developed world. It seeks excellence in pharmaceutical education, training and scientific research directed at developing pharmaceutical services dedicated to serving the patient and society at the local, regional and international levels.

### **2. Program Mission**

The Department of Pharmacy Technologies is an educational and research institution of public benefit whose goal is human health. The department is keen to provide high-quality education and training using the latest multidisciplinary methods to prepare pharmacist assistants and pharmaceutical scientists who have high scientific and professional capabilities and skills to be leaders in their specialties who are able to spread health culture, provide the best health care in society, and develop scientific research for the well-being of society and human health.

### **3. Program Objectives**

1. Preparing qualified pharmacists and pharmaceutical scientists to work in health institutions, community pharmacies, pharmaceutical laboratories, pathological analysis laboratories, and pharmaceutical factories, in addition to private pharmaceutical marketing companies.
2. Updating and developing study plans to suit the labor market and community needs.
3. Taking into account the market need when developing related specializations in various fields of health.
4. Providing advanced and distinguished education to graduate professionally and research-qualified pharmacists.

#### 4. Program Accreditation

The program has not received accreditation

#### 5. Other external influences

The department's graduates serve the community in health institutions and hospitals and through practical application in Health centers and hospitals during summer training.

#### 6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	1	2	1.5	
College Requirements	2	5	3.8	
Department Requirements	34	129	94.5	
Summer Training				
Other				

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

#### 7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
First year/semester the first	Unavailable	Pharmacy Principles	2	4
First year/semester the first	Unavailable	Basics Of Organic Chemistry	2	4
First year/semester the first	Unavailable	Analytical Chemistry	2	4
First year/semester the first	Unavailable	Medical terminology	1	0
First year/semester the first	Unavailable	Microbiology	2	2
First year/semester the first	Unavailable	Principle of Physiology	2	2
First year/semester the first	Unavailable	Human Rights and Democracy	2	0

<b>First year/semester the first</b>	Unavailable	<b>Computer application</b>	<b>1</b>	<b>2</b>
<b>First year/semester the second</b>	Unavailable	<b>English</b>	<b>2</b>	<b>-</b>
<b>First year/semester the second</b>	Unavailable	حسابات صيدلانية <b>Pharmaceuticals Calculation</b>	<b>2</b>	<b>4</b>
<b>First year/semester the second</b>	Unavailable	<b>Basics Of Organic Chemistry</b>	<b>2</b>	<b>4</b>
<b>First year/semester the second</b>	Unavailable	<b>Biochemistry</b>	<b>2</b>	<b>4</b>
<b>First year/semester the second</b>	Unavailable	<b>Physiology</b>	<b>2</b>	<b>2</b>
<b>First year/semester the second</b>	Unavailable	<b>Virology and parasite</b>	<b>2</b>	<b>2</b>
<b>First year/semester the second</b>	Unavailable	<b>Biostatistics</b>	<b>2</b>	<b>0</b>
<b>First year/semester the second</b>	Unavailable	<b>Computer application</b>	<b>2</b>	<b>1</b>
<b>Second year/first semester</b>	Unavailable	Pharmaceutics	2	3
<b>Second year/first semester</b>	Unavailable	Industrial Principles	2	3
<b>Second year/first semester</b>	Unavailable	Principles Of Pharmaceutical Chemistry	2	3
<b>Second year/first semester</b>	Unavailable	Principles of Drugs	2	3
<b>Second year/first semester</b>	Unavailable	Basics of Therapeutic Application	2	2
<b>Second year/first semester</b>	Unavailable	Medicinal Plants and Natural Products	2	2
<b>Second year/first semester</b>	Unavailable	Toxicology	2	-
<b>Second year/first semester</b>	Unavailable	Methodology	-	2
<b>Second year/second semester</b>	Unavailable	Industrial Pharmacy	2	3
<b>Second year/second semester</b>	Unavailable	Pharmaceutical Chemistry	2	3
<b>Second year/second semester</b>	Unavailable	Pharmaceutical Chemistry	2	3
<b>Second year/second semester</b>	Unavailable	Pharmacology	2	3

<b>semester</b>				
<b>Second year/second semester</b>	Unavailable	Therapeutic Application	2	2
<b>Second year/second semester</b>	Unavailable	Pharmacognacy	2	2
<b>Second year/second semester</b>	Unavailable	Professional Ethics	2	-
<b>Second year/second semester</b>	Unavailable	Proposal	-	2

## 8. Expected learning outcomes of the program

<b>Knowledge</b>	
Learning Outcomes 1	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Laboratories</li> <li>• summer training</li> <li>• Graduation Project</li> </ul>
<b>Skills</b>	
Learning Outcomes 2	1- Communication and conversation skills such as English and presentation skills 2_ The skill of the student's ability to dialogue and discuss 3- Leadership skill, taking responsibility, and developing personality to serve the decision 4- Self-education and self-reliance skills
Learning Outcomes 3	<ul style="list-style-type: none"> <li>• Monthly exams</li> <li>• Daily exams</li> <li>• Oral exams</li> <li>• final exams</li> <li>• Discussing quarterly research.</li> </ul>
<b>Ethics</b>	

## 9. Teaching and Learning Strategies

Teaching and learning strategies and methods adopted in implementing the program in general.

## 10. Evaluation methods

Implementing it in all stages of the program in general.

## 1. Faculty

### Faculty Members

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

Professor	Biology	Physiology			1	
Professor	Veterinary medicine	Medicines and toxins			1	
Professor	Chemistry	clinical Chemistry			1	
Assistant Professor	Law	Law			1	
Assistant Professor	Administration and Economics	Administration and Economics			1	
Assistant Professor	Biology	Biological resistance			1	
Lecturer	Veterinary medicine	Medicines and toxins			1	
Lecturer (2)	Chemistry	general chemistry			2	
Lecturer	ComputerScience	Computer			1	
assistant lecturer (3)	Biology	Microbiology			3	
assistant lecturer	Biology	Physiology			1	
assistant lecturer	Biology	Medical parasitology			1	
assistant lecturer	Chemistry	analytical chemistry			3	
assistant lecturer	Veterinary medicine	Anatomy			2	
assistant lecturer	Chemistry	general chemistry			1	

## **Professional Development**

### **Mentoring new faculty members**

New members of the department are developed by introducing them to teaching methods courses, conducting a teaching validity test, and holding a training course, seminars, and workshops to train them in the approved work contexts.

### **Professional development of faculty members**

Faculty members are developed by holding training courses, seminars and workshops to train them in approved work contexts

## **2. Acceptance Criterion**

Central admission to the Ministry of Higher Education and Scientific Research

### **3. The most important sources of information about the program**

- 1\_ Methodical books
- 2\_ Supporting sources
- 3\_ Public sources
- 4\_ The Internet

### **4. Program Development Plan**

Future plans include developing the laboratories of the Pharmacy Technology Department, as well as developing the curriculum by deleting, adding, and replacing

### Program Skills Outline

				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year	Unavailable	Pharmacy Principles	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	Unavailable	Basics Of Organic Chemistry	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First year	Unavailable	Analytical Chemistry	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	Unavailable	Medical terminology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First year	Unavailable	Microbiology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	Unavailable	Principle Physiology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First year	Unavailable	Human Rights and Democracy	Basic	√	√	√	√	√	√	√	√	√	√	√	√
	Unavailable	Computer application	Optional	√	√	√	√	√	√	√		√			
First year	Unavailable	English	Optional	√	√	√	√	√	√	√	√	√	√	√	√

Program Skills Outline															
Year/Level	Course Code	Course Name	Basic or optional	Required program Learning outcomes											
				Knowledge				Skills				Ethics			
First year	Unavailable	Biochemistry	Basic	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
First year	Unavailable	Physiology	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First year	Unavailable	Virology and parasite	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First year	Unavailable	Biostatistics	Basic	√	√	√	√	√	√	√	√	√	√	√	√
First year	Unavailable	Computer application	Optional	√	√	√	√	√	√			√			

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

<b>Second year</b>	unavailable	Pharmaceutics	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Industrial Principles	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	unavailable	Principles Of Pharmaceutical Chemistry	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Principles of Drugs	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	unavailable	Basics of Therapeutic Application	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Medicinal Plants and Natural Products	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	unavailable	Toxicology	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Pharmaceutics	<b>Optional</b>	√	√	√	√	√	√			√			
				<b>Required program Learning outcomes</b>											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4

<b>Second year</b>	unavailable	Industrial Pharmacy	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Pharmaceutical Chemistry	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	unavailable	Pharmaceutical Chemistry	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Pharmacology	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	unavailable	Therapeutic Application	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Pharmacognacy	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	unavailable	Professional Ethics	<b>Basic</b>	√	√	√	√	√	√	√	√	√	√	√	√
	unavailable	Proposal	<b>Optional</b>	√	√	√	√	√	√	√	√	√	√	√	√
<b>Second year</b>	Un ava ilab le	Industrial Pharmacy	<b>Optional</b>	√	√	√	√	√	√			√			

## Course Description Form

<b>1. Course Name:</b>	
Principles of pharmacy	
<b>2. Course Code:</b>	
Unavailable	
<b>3. Semester / Year:</b>	
Semester	
<b>4. Description Preparation Date:</b>	
2024/2/26	
<b>5. Available Attendance Forms:</b>	
Lectures	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
H 90,U 6	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Hassan Adheem Abbas Email: nb.hsn4@atu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	1. Shedding light on this subject to introduce the first-year student to pharmacology, its history and origins. 2. Determine the dates for determining medication for the patient in general to determine how to determine this prescription and which ensures that its effect reaches the patient as much as possible. 3. Definition of medicine and its sources
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	1.Future lecture method. 2. Thermal lecture method. 3. Method of discussion and dialogue
<b>10. Course Structure</b>	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	How to use laboratory, weights and how to measure	Principles of pharmacy	Practice	Annual exam
2-6	3	Preparation of different kinds of	Principles of pharmacy	Practice	Annual exam

		aromatic waters (chloroform water, annis water, dill water, carwi water. benefit & properties			
7-8	3	Preparation of Mixtures of (liquid +liquid). (liquid+solid), benefit & properties	Principles of pharmacy	Practice	Annual exam
9-10	3	Preparation of Elixir	Principles of pharmacy	Practice	Annual exam
11-13	3	Preparation of syrups	Principles of pharmacy	Practice	Annual exam
15	3	Preparation of Lotions formulation , emulsions	Principles of pharmacy	Practice	Annual exam
1	2	Introduction, terms & instrument	Principles of pharmacy	Theoretical lectures	Annual exam
2	2	Kinds of water used in pharmacy, Method of preparations.	Principles of pharmacy	Theoretical lectures	Annual exam
3-4	2	Pharmaceutical calculation of dosage form.	Principles of pharmacy	Theoretical lectures	Annual exam
5-6	2	Formulation & compounding of drugs & Rx	Principles of pharmacy	Theoretical lectures	Annual exam
7-8	2	Mixtures of (liquid +liquid) , (liquid+solid), benefit & properties	Principles of pharmacy	Theoretical lectures	Daily quizzes
9-10	2	Mixtures containing precipitate forming liquids Mixtures containing slightly soluble liquid Mixtures containing small doses of potent drugs	Principles of pharmacy	Theoretical lectures	Daily quizzes
11-12	2	Powders, definition, powders in packets, Bulk powder, Methods of preparation of compound powders, powder in small doses	Principles of pharmacy	Theoretical lectures	Daily quizzes
13	2	(Elixirs, definition, contents), (Syrups, definition, Kinds)	Principles of pharmacy	Theoretical lectures	Annual exam
14	2	Suspension dosage form properties	Principles of pharmacy	Theoretical lectures	Annual exam
15	2	Emulsion ,definitions, kinds, tests and choice of emulsifying agents	Principles of pharmacy	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Enclopedi of pharmaceutical technology
Recommended books and references (scientific journals, reports...)	Methodical books
Electronic References, Websites	Virtual electronic library

### Course Description Form

1. Course Name:	
Basics Of Organic Chemistry	
2. Course Code:	
unavailable	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
2024/2/26	
5. Available Attendance Forms:	
Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Hours 90, 6 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Hussein adnan Hussein Email: hussein.mater.iba@atu.edu.iq	
8. Course Objectives	
Course Objectives	<p>1. The student learns about the principles and basics of organic chemistry for simple aliphatic and aromatic compounds, including structure classification, nomenclature, interaction and properties.</p> <p>2. The student should be able to understand and know the mechanism of organic reactions, intermediates, concepts of acidity and stability of aromatic molecules, as well as heterocyclic chemistry and stereochemistry.</p> <p>3. The student will be able to learn the different methods for identifying the structural composition of organic compounds</p>
9. Teaching and Learning Strategies	

1. The theoretical lecture method.
2. Scientific lecture method.
3. Method of discussion and dialogue

### 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Type of Glass ware (Laboratory equipment) and safety.	Basics Of Organic Chemistry	Practice	Annual exam
2	3	Care & uses of the balance.	Basics Of Organic Chemistry	Practice	Annual exam
3	3	Separation & purification of	Basics Of Organic Chemistry	Practice	Annual exam
4	3	organic Compounds by (Filtration).	Basics Of Organic Chemistry	Practice	Annual exam
5	3	Separation & purification of organic compounds	Basics Of Organic Chemistry	Practice	Annual exam
6	3	Extraction. Crystallization & recrystallization. Separation & purification of organic compounds	Basics Of Organic Chemistry	Practice	Annual exam
7	2	Sublimation. separation & purification of organic compounds (Distillation). Physical properties; Determination of (melting point). Quiz & unknown	Basics Of Organic Chemistry	Practice	Annual exam
8	2	Determination of boiling point.	Basics Of Organic Chemistry	Practice	Annual exam
9-10	2	Quiz & unknown. I. Introduction to safety in the use of	Basics Of Organic Chemistry	Practice	Annual exam
11-15	2	chemicals. II. Identification, classification and labeling of chemicals	Basics Of Organic Chemistry	Practice	Annual exam
1	2	III. Chemical safety cards	Basics Of Organic Chemistry	Theoretical lectures	Daily quizzes
2	2	IV. Transport and storage of chemicals	Basics Of Organic Chemistry	Theoretical lectures	Daily quizzes
3	2	Introduction in organic chemistry chemical bonds; Bonding in organic	Basics Of Organic Chemistry	Theoretical lectures	Daily quizzes
4	2	compounds;	Basics Of Organic	Theoretical lectures	Annual exam

		hybridization.	Chemistry		
5	2	Electron configuration; chemical formulas isomerism. Optical Isomerism	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
6	2	Stereochemistry of organic compounds .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
7		Hydrocarbon (1) saturated carbons (Alkane) Nomenclature ; physical properties ; Structures ; chemical properties	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
8		Preparations methods ; reactions , uses in pharmacy	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
9-10		Hydrocarbon unsaturated (Alkenes)	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
11-13		Nomenclature ; physical properties structure ; Chemical properties; Reaction of carbon – carbon double; uses in pharmacy.	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
14-15		Cyclo Alkane ; structure ; nomenclature, physical & chemical properties ; structure ; reactions preparation methods .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Organic chemistry mccurry; 5 <sup>th</sup> ed
Main references (sources)	Organic Chemistry by Robert T Morrison, Robert Boyd, 6th Edition 6th Edition. McMurry, J. (2008) Organic Chemistry. 7th Edition, Thomson Brooks Cole..
Recommended books and references (scientific journals, reports...)	Methodical books
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

Analytical Chemistry

2. Course Code:

unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 90, 6 Unit

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

Name: prf Sawsan Hassan kadhum

Email: Sawsan\_hassan@atu.edu.iq

8. Course Objectives

**Course Objectives**

1. The student learns the basic concepts and principles of analytical chemistry, including chemical reactions and methods for calculating various concentrations
2. The student discusses the principles of chemical analysis of various materials, including primitive ones, such as chemical titration of various types, such as spectroscopy analysis and chromatography.
3. The student will be able to apply these different methods in choosing the most appropriate one to analyze each substance according to its characteristics and components
4. The student will be able to apply this knowledge to different medicines to determine the concentration of the active ingredients in them and ensure that they comply with the specifications

9. Teaching and Learning Strategies

1. The theoretical lecture method.
2. Scientific lecture method.
3. Method of discussion and dialogue

### 13.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction, terms & instrument	Analytical Chemistry	Practice	Annual exam
2	3	Kinds of water used in pharmacy, Method of preparations.	Analytical Chemistry	Practice	Annual exam
3	3	Pharmaceutical calculation of dosage form.	Analytical Chemistry	Practice	Annual exam
4	3	Formulation & compounding of drugs & Rx	Analytical Chemistry	Practice	Annual exam
5	3	Mixtures of (liquid +liquid) , (liquid+ solid), benefit & properties	Analytical Chemistry	Practice	Annual exam
6	3	Mixtures containing precipitate forming liquids Mixtures containing slightly soluble liquid Mixtures containing small doses of potent drugs	Analytical Chemistry	Practice	Annual exam
7	3	Powders, definition, powders in packets, Bulk powder, Methods of preparation of compound powders, powder in small doses	Analytical Chemistry	Practice	Annual exam
8	3	(Elixirs, definition, contents), (Syrups, definition, Kinds)	Analytical Chemistry	Practice	Annual exam
9-10	3	Suspension dosage form properties	Analytical Chemistry	Practice	Annual exam
11-15	3	Emulsion ,definitions, kinds, tests and choice of emulsifying agents	Analytical Chemistry	Practice	Annual exam
1-3	2	Classification of analytical chemistry.	Analytical Chemistry	Theoretical lectures	Dailyquizzes
4	2	Solutions, molecular weight, equivalent weight.	Analytical Chemistry	Theoretical lectures	Annual exam

5	2	Reliability of analytical data.	Analytical Chemistry	Theoretical lectures	Annual exam
6	2	Gravimetric analysis-volumetric analysis, concentration of solutions, molarity and normality	Analytical Chemistry	Theoretical lectures	Annual exam
7	2	Preparation of solutions (molarity and normality).	Analytical Chemistry	Theoretical lectures	Annual exam
8	2	Preparation (solutions of part per millions).	Analytical Chemistry	Theoretical lectures	Annual exam
9-10	2	Examples: molarity, normality	Analytical Chemistry	Theoretical lectures	Annual exam
11-13	2	Standard solution, classification, preparation methods.	Analytical Chemistry	Theoretical lectures	Annual exam
14-15	2	Neutralization reaction-titration of strong acid against strong base-oxidation-	Analytical Chemistry	Theoretical lectures	Annual exam

#### 14.Course Evaluation

The evaluation method is as follows: 15% for the theoretical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the

#### 15.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Analytical chemistry by Skoog
Main references (sources)	Chemical Analysis in the Laboratory A Basic Guide,
Recommended books and references (scientific journals, reports...)	Modern Pharmaceutical Drug Analysis, by L . Zechmeister ,And L. Von Cholnoky, ISBN (13 ( 9-2718-224-81-978 :
Electronic References, Websites	Internet link

### Course Description Form

1. Course Name:
Medical terminology
2. Course Code:
Unavailable
3. Semester / Year:
Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 15, 1 Unit

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

Name: Saif Anwar Jaafar

Email: saif.nori@atu.edu.iq

8. Course Objectives

**Course Objectives**

1. Definition of medical terms and their maps
2. Know the basic elements of the medical word
3. Knowledge of the anatomical position, body levels and body cavities
4. Knowledge of radiological and diagnostic diversity

9. Teaching and Learning Strategies

1. The theoretical lecture method.
2. Scientific lecture method.
3. Method of discussion and dialogue

16. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction to Medical Terminology, Define and historical of medical terminology.	Medical terminology	Theoretical lectures	Annual exam

2	1	Basic Elements of a Medical Word, Word root Examples combining form.	Medical terminology	Theoretical lectures	Annual exam
3	1	Common prefix and suffixes.	Medical terminology	Theoretical lectures	Annual exam
4	1	Overview of Anatomy and Physiology.	Medical terminology	Theoretical lectures	Annual exam
5	1	Anatomical Position, Body Planes and Body Cavities.	Medical terminology	Theoretical lectures	Annual exam
6	1	Clinical, Radiologic, and Diagnostic Procedures.	Medical terminology	Theoretical lectures	Annual exam
7	1	Digestive System	Medical terminology	Theoretical lectures	Annual exam
8	1	Integumentary System	Medical terminology	Theoretical lectures	Annual exam
9	1	The Musculoskeletal System	Medical terminology	Theoretical lectures	Annual exam
10	1	The Reproductive System	Medical terminology	Theoretical lectures	Annual exam
11	1	Respiratory System	Medical terminology	Theoretical lectures	Dailyquizzes
12	1	The Urinary System	Medical terminology	Theoretical lectures	Annual exam
13	1	The Cardiovascular System	Medical terminology	Theoretical lectures	Annual exam
14	1	Blood , Lymph and Immune Systems	Medical terminology	Theoretical lectures	Annual exam
15	1	Nervous system	Medical terminology	Theoretical lectures	Annual exam

### 17. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 18. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Research or pathological cases to study from hospitals
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

Microbiology

2. Course Code:

Unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 90, 4 Unit

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

Name: hawraa ali , Khulood Abdul-Majeed Mohamed Jafeer

Email: [hawraa.ali.iba15@atu.edu.iq](mailto:hawraa.ali.iba15@atu.edu.iq)

Khulood.jafeer@atu.edu.iq

8. Course Objectives

Course Objectives

1. The student learns about the various

microscopic organisms, bacteria, parasites, and fungi, by reviewing their general characteristics and their methods of reproduction and spread in addition to determining their epidemiology.  
2. The student will be able to know the most important methods used in diagnosis and prevention

## 9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Safety in lab, tools and instrument	Microbiology	Practice	Annual exam
2	2	Sterilization, disinfection	Microbiology	Practice	Annual exam
3	2	Smear Preparation	Microbiology	Practice	Annual exam
4	2	Staining (Gram, Ziehl-Neelsen stain)	Microbiology	Practice	Annual exam
5	2	Culture media (Preparation + types)	Microbiology	Practice	Annual exam
6	2	Antibiotic sensitivity test	Microbiology	Practice	Annual exam
7	2	Gram negative bacteria	Microbiology	Practice	Annual exam
8	2	Gram positive bacteria	Microbiology	Practice	Annual exam
9	2	Clostridium, spore staining, an aerobic culture	Microbiology	Practice	Annual exam
10	2	Mycobacterium	Microbiology	Practice	Annual exam
11	2	Pharmacodynamical interactions	Microbiology	Practice	Daily quizzes
12	2	Drug contamination Mycology	Microbiology	Practice	Annual exam
13	2		Microbiology	Practice	Annual exam
1-2	2	-History of biosafety microbiology and molecular biology - Biosafety levels , Personal protective equipment	Microbiology	Theoretical lectures	Annual exam
3-4	2	-Laboratory facilities and safety equipment - Disinfection, decontamination, and	Microbiology	Theoretical lectures	Annual exam

		sterilization. Introduction, bacterial shapes, bacterial cell structure and toxins Bacterial growth curve, oxygen requirement and PH			
5-8	2	Types of immunity, antigen and antibodies Antibiotics and antibiotics resistance	Microbiology	Theoretical lectures	Annual exam
9-11	2	Enterobacteriaceae (E. coli, Salmonella and Proteus) Pseudomonas, Vibrio	Microbiology	Theoretical lectures	Annual exam
12-13	2	Neisseria, H pylori Staphylococci	Microbiology	Theoretical lectures	Annual exam
14-15	2	Streptococci Mycobacterium, Corynebacterium Spores, Clostridium Chlamydia, Treponema Microbiota Drug contamination Introduction to mycology, types of fungal diseases, antifungal	Microbiology	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Warren levinson
Recommended books and references (scientific journals, reports...)	Methodical books
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

Principle of Physiology

2. Course Code:

Unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 60, 4 Unit

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

Name: hanan.hammood, Shurooq Asaad Abdulameer Shaher

inb.shroq@atu.edu.iq

Email: hanan.hammood@atu.edu.iq

8. Course Objectives

**Course Objectives**

1. The student is able to identify the functions of the various body systems and describe their mechanism of action
2. The student can estimate the normal and abnormal values of the various body systems
3. Learn how to explain the amount of change in the normal functions of the various accompanying body systems

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
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1	2	The microscope , structures and uses	Principle of Physiology	Practice	Dailyquizzes
2	2	Making and staining of blood film	Principle of Physiology	Practice	Dailyquizzes
3-4	2	Smearing and staining blood film	Principle of Physiology	Practice	Dailyquizzes
5-7	2	The enumeration of red blood cells	Principle of Physiology	Practice	Dailyquizzes
8-9	2	The enumeration of white blood cells Differential count	Principle of Physiology	Practice	Dailyquizzes
10-11	2	Estimation of hemoglobin	Principle of Physiology	Practice	Dailyquizzes
12-13	2	Identification of blood grouping	Principle of Physiology	Practice	Dailyquizzes
14-15	2	The microscope , structures and uses	Principle of Physiology	Practice	Dailyquizzes
1-2	2	Cells and tissues , types of tissues Transport substances across cell membrane	Principle of Physiology	Theoretical lectures	Annual exam
3-4	2	Blood , functions , types of cells, plasma , blood group	Principle of Physiology	Theoretical lectures	Annual exam
5-7	2	Cardio vascular system , heart and blood vessels , cardiac cycle , blood	Principle of Physiology	Theoretical lectures	Annual exam
8-9	2	Circulation Heart rhythm , SA node , electrocardiogram	Principle of Physiology	Theoretical lectures	Annual exam
10-11	2	Respiratory system, functions , regulation of blood ph.	Principle of Physiology	Theoretical lectures	Annual exam
12-13	2	digestive system , functions , organs and their secretion	Principle of Physiology	Theoretical lectures	Annual exam
14-1	2	digestive tract, movement , accessory organs	Principle of Physiology	Theoretical lectures	Annual exam

### 11.Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Pathophysiology Conale
Recommended books and references (scientific journals, reports...)	Research or pathological cases to study from hospitals
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

Human Rights and Democracy

2. Course Code:

Unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 30, 2 Unit

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

Name: Hussein Mohsen Khader Abbas Al-Rifai

Email: hu1994ssen@gmail.com

8. Course Objectives

**Course Objectives**

1. The student learns about continuous awareness of human rights and the fundamental freedoms associated with them
2. The student must be able to fight everything that aims to ignore it, undermine it, or undermine its sanctity
3. Learn about the concept of democracy and its relationship to public freedoms

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Human rights - their definition - their goals	Human Rights and Democracy	Theoretical lectures	Daily quizzes

2	2	Human rights in ancient civilizations, especially the Mesopotamian civilization	Human Rights and Democracy	Theoretical lectures	Dailyquizzes
3-4	2	Human rights in divine laws, with a focus on human rights in Islam Human rights in contemporary and modern history - international recognition of human rights since World War I and the League/United Nations	Human Rights and Democracy	Theoretical lectures	Dailyquizzes
5-7	2	Regional recognition of human rights, European Convention on Human Rights 1950, American Convention 0	Human Rights and Democracy	Theoretical lectures	Dailyquizzes
8-9	2	Non-governmental organizations and human rights (International Committee of the Red Cross - Amnesty International - Human Rights Watch - National Human Rights Organizations	Human Rights and Democracy	Theoretical lectures	Dailyquizzes

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Human Rights Dr. Maher Saleh Allawi
Recommended books and references (scientific journals, reports...)	Methodical books
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

Computer application 1

2. Course Code:

unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 45, 3 Unit

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

Name: Ali mohammed abdul majeed

Email: alialamily66@gmail.com

8. Course Objectives

**Course Objectives**

1. Enabling the student to understand all types of computer software that can be used
2. The student can use the computer at any time
3. The student is able to interact with educational lessons at the appropriate time

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Computer Fundamentals	Computer application 1	Practice	Dailyquizzes
2	2	The concept of the computer, stages of the computer life cycle, development of computer generations	Computer application 1	Practice	Dailyquizzes

3-4	2	The computer and its areas of use. Computer classification in terms of purpose, size and type data Computer's components Components Computer Computer components are the physical parts For computer entities	Computer application 1	Practice	Dailyquizzes
5-7	2	Software Your personal computer, computer security concept and software licenses	Computer application 1	Practice	Dailyquizzes
8-9	2	Computer security and software licenses Computer Safety & Software Licenses	Computer application 1	Practice	Dailyquizzes
		Creator of the electronic world, forms of abuse, computer security, computer privacy	Computer application 1	Practice	
10-12	2	Practical examples of browsing, opening and closing windows and dialog boxes The correct way to handle the keyboard and cursor Other devices.	Computer application 1	Practice	Dailyquizzes
13-15	2	Computer Fundamentals	Computer application 1	Practice	Dailyquizzes
1-2	2	The concept of the computer, stages of the computer life cycle, development of computer generations	Computer application 1	Theoretical lectures	Annual exam
3-5	2	The computer and its areas of use. Computer classification in terms of purpose, size and type data Computer's components Components Computer Computer components are the physical parts For computer entities	Computer application 1	Theoretical lectures	Annual exam
6-8	2	Software Your personal computer, computer security concept and software licenses	Computer application 1	Theoretical lectures	Annual exam
9-11	2	Computer security and software licenses Computer Safety & Software Licenses	Computer application 1	Theoretical lectures	Annual exam

12-13	2	Creator of the electronic world, forms of abuse, computer security, computer privacy	Computer application 1	Theoretical lectures	Annual exam
14-15	2	Practical examples of browsing, opening and closing windows and dialog boxes The correct way to handle the keyboard and cursor Other devices.	Computer application 1	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Computer basics and office applications Microsoft office powerpoint 2013
Recommended books and references (scientific journals, reports...)	Methodical books
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:
Pharmaceuticals Calculation
2. Course Code:
Unavailable
3. Semester / Year:
Semester
4. Description Preparation Date:
2024/2/26
5. Available Attendance Forms:
Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)
Hours 90, 6 Unit
7. Course administrator's name (mention all, if more than one name)

Name: Hassan Adheem Abbas

Email: nb.hsn4@atu.edu.iq

## 8. Course Objectives

### Course Objectives

1. Enable the student to understand pharmaceutical data
2. The applicant must be able to understand measurement system and pharmaceutical calculations
3. Learn how to prepare various pharmaceutical preparations
4. The student will be able to memorize pharmaceutical preparations, their classification, and their benefits

## 9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Demonstration of different glass wares and equipment used in the field of pharmacy	Pharmaceuticals Calculation	Practice	Dailyquizzes
2	2	Pharmaceutical measurements.	Pharmaceuticals Calculation	Practice	Dailyquizzes
3-4	2	Volume measurements	Pharmaceuticals Calculation	Practice	Dailyquizzes
5-7	2	Preparation of aromatic waters Preparation of simple solutions. Reducing and enlarging prescription contents. Percentages in calculating prescription contents. Stock solutions and dilution technique during dispensing technique)	Pharmaceuticals Calculation	Practice	Dailyquizzes
8-9	2		Pharmaceuticals Calculation	Practice	Dailyquizzes
		Careless calculations cost lives Units of measure	Pharmaceuticals Calculation	Practice	
10-12	2	Ratios and proportions	Pharmaceuticals Calculation	Practice	Dailyquizzes

13-15	2	Multi-dose vials	Pharmaceuticals Calculation	Practice	Dailyquizzes
1-2	2	Concentration and dilution	Pharmaceuticals Calculation	Theoretical lectures	Annual exam
3-5	2	Percentage volume-in-volume	Pharmaceuticals Calculation	Theoretical lectures	Annual exam
6-8	2	Percentage weight-in-weight	Pharmaceuticals Calculation	Theoretical lectures	Annual exam
9-11	2	Ratio strength Percent of error Apothecary system	Pharmaceuticals Calculation	Theoretical lectures	Annual exam
12-13	2	Demonstration of different glass wares and equipment used in the field of pharmacy	Pharmaceuticals Calculation	Theoretical lectures	Annual exam
14-15	2	Pharmaceutical measurements.	Pharmaceuticals Calculation	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Pharmaceutical calculations Ansel
Recommended books and references (scientific journals, reports...)	British pharmacopoeia United State Pharmacopoeias European Pharmacopeias
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:
Basics Of Organic Chemistry
2. Course Code:
Unavailable
3. Semester / Year:
Semester
4. Description Preparation Date:
2024/2/26
5. Available Attendance Forms:
Lectures
6. Number of Credit Hours (Total) / Number of Units (Total)

Hours 90, 6 Unit

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

Name: Hussein adnan hussein  
Email: hussein.mater.iba@atu.edu.iq

8. Course Objectives

Course Objectives

1. Identify aromatic hydrocarbons (benzene).
2. Reaction and diagnosis of aromatic carboxylic acid.
3. Preparation and reaction of amine uses in pharmacy
4. Identify reactions and identify aldehydes.

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Solubiling & classification .	Basics Of Organic Chemistry	Practice	Dailyquizzes
2	4	Determination of solubilities of organic compounds	Basics Of Organic Chemistry	Practice	Dailyquizzes
3	4	Quiz & unknown .	Basics Of Organic Chemistry	Practice	Dailyquizzes
4	4	Reaction & identification of alcohols .Quiz & unknown .	Basics Of Organic Chemistry	Practice	Dailyquizzes
5	4	Reactions & identification of aldehydes .Quiz & unknown .	Basics Of Organic Chemistry	Practice	Dailyquizzes
6	4	Reaction & identification of Ketons .Quiz & unknown .	Basics Of Organic Chemistry	Practice	
7-9	4	Reaction & identification of aliphatic/ Carboxylic acid./ Quiz & unknown/Reaction & identification of	Basics Of Organic Chemistry	Practice	Dailyquizzes

		aromatic carboxylic acid. Identification of esters . Identification of aromatic Hydrocarbons ( Benzene ) . Quiz & unknown .			
	4	Identification of ether .	Basics Of Organic Chemistry	Practice	Daily quizzes
10-12	4	Identification of amines Compounds	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
13-15	4	Solubility & classification .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
1-2	2	Determination of solubilities of organic compounds	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
3-4	2	Quiz & unknown .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
5-6	2	Reaction & identification of alcohols . Quiz & unknown .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
7-8	2	Reactions & identification of aldehydes . Quiz & unknown .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
9-10	2	Reaction & identification of Ketons . Quiz & unknown .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
10-11	2	Reaction & identification of aliphatic/ Carboxylic acid./ Quiz & unknown/ Reaction & identification of aromatic carboxylic acid. Identification of esters . Identification of aromatic Hydrocarbons ( Benzene ) . Quiz & unknown .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
12-13	2	Identification of ether .	Basics Of Organic Chemistry	Theoretical lectures	Annual exam
14-15	2	Identification of amines Compounds	Basics Of Organic Chemistry	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

\*Organic Chemistry by J. McMurry, latest Thomson learning, CA, USA. 3<sup>rd</sup> edition introduction to the chemistry of heterocyclic compound by Acheson, R. M. latest ed

Main references (sources)

McMurry, J. (2008) Organic Chemistry. 7th Edition, Thomson Brooks Cole

Recommended books and references (scientific journals, reports...)	*Organic Chemistry by Robert T. Morrison and Robert N. Boyd, latest edition..
Electronic References, Websites	Wikipedia

## Course Description Form

1. Course Name:	
Biochemistry	
2. Course Code:	
unavailable	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
2024/2/26	
5. Available Attendance Forms:	
Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Hours 90, 6 Unit	
7. Course administrator's name (mention all, if more than one name)	
Name: prf Sawsan Hassan kadhum Email: Sawsan_hassan@atu.edu.iq	
8. Course Objectives	
<b>Course Objectives</b>	<ol style="list-style-type: none"> <li>1. Helping to understand the principles of biochemistry</li> <li>2. Providing a solid foundation for a successful chemical career</li> <li>3. Providing the student with some basic skills that may be necessary for future studies, such as analyzing results and documents and using the Internet.</li> </ol>
9. Teaching and Learning Strategies	
	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue

### 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Carbohydrates	Biochemistry	Practice	Dailyquizzes
2	4	classification-properties-monosaccharide reaction.	Biochemistry	Practice	Dailyquizzes
3	4	Unknown (discussion).	Biochemistry	Practice	Dailyquizzes
4	4	Disaccharides-reaction.	Biochemistry	Practice	Dailyquizzes
5	4	Unknown, discussion-reports.	Biochemistry	Practice	Dailyquizzes
6	4	Polysaccharides-reaction.	Biochemistry	Practice	
7	4	Unknown, discussion-reports.	Biochemistry	Practice	Dailyquizzes
8-9	4	Lipids-classification-fatty acids-hydrogenation.	Biochemistry	Practice	Dailyquizzes
10-12	4	Determination of iodine No. and saponification.	Biochemistry	Theoretical lectures	Annual exam
13-15	4	Proteins-classification of amino acids-properties,	Biochemistry	Theoretical lectures	Annual exam
1-2	2	Biochemistry-Define-Importance. Carbohydrates-Define-Classification-Properties-Monosaccharides-Define-Properties-reactions.	Biochemistry	Theoretical lectures	Annual exam
3-4	2	Disaccharides-Define-Types-Properties-chemical reactions. Polysaccharides-Define-Types-Properties-Chemical reactions and	Biochemistry	Theoretical lectures	Annual exam
5-6	2	Reports.	Biochemistry	Theoretical lectures	Annual exam
7-8	2	Metabolism of carbohydrates.	Biochemistry	Theoretical lectures	Annual exam
9-10	2	Lipids-Define-classification-Fatty acids-classification –	Biochemistry	Theoretical lectures	Annual exam
10-11	2	properties. Hydrations-rancidity-iodine number-saponification-metabolism of fat. Proteins-define-classification-	Biochemistry	Theoretical lectures	Annual exam

		properties.			
12-13	2	Amino acids-define classification-properties-chemical reaction	Biochemistry	Theoretical lectures	Annual exam
14-15	2	Metabolism of proteins and amino acids. Nucleic acids-nucleic proteins-reports	Biochemistry	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Harper, s illustrated biochemistry
Main references (sources)	Lehninger(principles of biochemistry
Recommended books and references (scientific journals, reports...)	Stryer (biochemistry) voet (biochemistry)
Electronic References, Websites	Wikipedia

## Course Description Form

1. Course Name:

Physiology

2. Course Code:

unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 60, 4 Unit

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

Name: Name: hanan.hammood, Shurooq Asaad Abdulameer Shaher  
inb.shroq@atu.edu.iq

Email: hanan.hammood@atu.edu.iq

## 8. course Objectives

### Course Objectives

1. Study of many different diseases that affect the human body.
2. Study of the physiology and pathogenesis of diseases occurring within the body.
3. Identify the most prominent clinical signs accompanying the occurrence of diseases.
4. Identify diseases that affect organs in all body systems

## 9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	The erythrocyte sedimentation rate	Physiology	Practice	Dailyquizzes
3-4	2	Bleeding and clotting time	Physiology	Practice	Dailyquizzes
5-6	2	The determining of body temperature Tracing of the pulse Heart sound Measurement of blood pressure The effect of exercises on blood pressure The electrocardiogram	Physiology	Practice	Dailyquizzes
7-8	2	The spirometer and its uses in the measurement of respiratory volume	Physiology	Practice	Dailyquizzes
9-11	2	Systems and parts of the human body	Physiology	Practice	Dailyquizzes
12-15	2	Demonstration of natural bones The uses of national statem nervous system, define	Physiology	Practice	Dailyquizzes
1-4	2	, parts of nervous system, functions Nerves , synapses ,neurotransmitters. Autonomic nervous system , functions ,	Physiology	Practice	Dailyquizzes

		receptors Blood pressure			
8-9	2	urinary system , structures , functions Regulation of functions of the kidneys Muscles , type , functions , contraction endocrine glands , types , functions Regulation of body temperature and posters	Physiology	Practice	Daily quizzes
10-12	2	, parts of nervous system, functions Nerves , synapses , neurotransmitters. Autonomic nervous system , functions , receptors Blood pressure	Physiology	Theoretical lectures	Annual exam
13-15	2	urinary system , structures , functions Regulation of functions of the kidneys Muscles , type , functions , contraction endocrine glands , types , functions Regulation of body temperature and posters	Physiology	Theoretical lectures	Annual exam

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Physiology
Main references (sources)	Pathophysiology Conale
Recommended books and references (scientific journals, reports...)	Research or pathological cases to study from hospitals
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

Virology and parasite

2. Course Code:

Unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 60, 4 Unit

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

Name: hawraa ali , Khulood Abdul-Majeed Mohamed Jafeer

Email: hawraa.ali.iba15@atu.edu.iq

Khulood.jafeer@atu.edu.iq

8. course Objectives

**Course Objectives**

1. Knowing the diseases of the body, types of parasites, and how to diagnose them.
2. Knowledge of various parasitological analyzes to diagnose the types of parasites.
3. Knowledge of all diseases through cultivation of slides.
4. . Identify viruses.
5. Knowing the types of diseases caused by viruses
6. Knowing how to diagnose viruses and how to treat them.

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	Microbiological	Virology and	Practice	Dailyquizzes

		safety cabinet	parasite		
3-4	2	Electron microscope	Virology and parasite	Practice	Dailyquizzes
5-6	2	Tissue culture Embryonated egg Lab animals Serological diagnosis Immunochromatography	Virology and parasite	Practice	Dailyquizzes
7-8	2	PCR Entamoeba histolytica, Giardia Lambliatrichomonas vaginalis, Leishmania	Virology and parasite	Practice	Dailyquizzes
9-11	2	Plasmodium, Toxoplasma gondii Enterobius vermicularis, Ascaris lumbricoides Schistosoma spp Echinococcus granulosus (hydatid cyst) Taenia saginata Taenia solium	Virology and parasite	Practice	Dailyquizzes
12-15	2		Virology and parasite	Practice	Dailyquizzes
1-4	2		Virology and parasite	Practice	Dailyquizzes
8-9	2		Virology and parasite	Practice	Dailyquizzes
10-12	2	Introduction to virology, virus structure, classification, viral replication Antivirals and vaccines DNA enveloped viruses (Herpes simplex virus, Cytomegalovirus, Varicella-Zoster virus	Virology and parasite	Theoretical lectures	Annual exam
13-15	2	DNA non envelop viruses (Human Papilloma virus, Adenovirus)Mumps, measles, Rubella Influenza ,Coronavirus, Rota Hepatitis viruses, HIV	Virology and parasite	Theoretical lectures	Annual exam

### 11.Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Methodical books
Recommended books and references (scientific journals, reports...)	Medical microbiology,sixteenedition E.Jawetz,J.L.

## Course Description Form

1. Course Name:

Biostatistics

2. Course Code:

unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 30, 2 Unit

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

Name: saadia.alsultani

Email: saadia.alsultani@atu.edu.iq

8. course Objectives

**Course Objectives**

. The student will be able to process and analyze statistical data, reach correct conclusions, and prepare a statistical form

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required	Unit or subject	Learning	Evaluation
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		<b>Learning Outcomes</b>	<b>name</b>	<b>method</b>	<b>method</b>
1-2	2	Definition of statistics. Data collection methods - presenting and describing statistical data	Biostatistics	Theoretical lectures	Dailyquizzes
3-4	2	“Representing frequency distributions,” tabulated data, “tabular display,” and distribution tables	Biostatistics	Theoretical lectures	Dailyquizzes
5-6	2	Repetitiveness	Biostatistics	Theoretical lectures	Dailyquizzes
7-8	2	Graphical display - histogram, histogram, histogram, and polygon.	Biostatistics	Theoretical lectures	Dailyquizzes
9	2	Measures of central tendency	Biostatistics	Theoretical lectures	Dailyquizzes
10	2	-Arithmetic mean . The mediator. The mode.	Biostatistics	Theoretical lectures	Dailyquizzes
11	2	Life statistics, ratio and rate	Biostatistics	Theoretical lectures	Dailyquizzes
12	2	Fertility statistics.	Biostatistics	Theoretical lectures	Dailyquizzes
13-14	2	Disease statistics - life tables.	Biostatistics	Theoretical lectures	Annual exam
15	2	Definition of health statistics and its sources.	Biostatistics	Theoretical lectures	Annual exam

### 11.Course Evaluation

The evaluation method is as follows: the theoretical exam outside of 30%. As for the final examination, 70% for the theoretical

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures by the subject professor
Main references (sources)	Modern Pharmaceutical Drug Analysis, by L. Zechmeister ,And L. Von Cholnoky, ISBN (13) : 978-81-224-2718-9
Recommended books and references (scientific journals, reports...)	Methodical books
Electronic References, Websites	Virtual electronic library

## Course Description Form

1. Course Name:

English

2. Course Code:

unavailable

3. Semester / Year:

Semester

4. Description Preparation Date:

2024/2/26

5. Available Attendance Forms:

Lectures

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

Hours 30, 2 Unit

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

Name:

Email:

8. course Objectives

**Course Objectives**

1. Providing students with basic skills to communicate in the English language
2. The student should be able to use English grammar correctly and employ writing skills according to sound foundations.

9. Teaching and Learning Strategies

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	In this course of teaching English language, the students will develop their intellectual, personal	English	Theoretical lectures	Dailyquizzes

		and professional abilities, acquire basic language skills (listening, speaking, reading and writing) in order to communication with			
3-4	2	speakers of English language, also acquire the linguistic competence necessarily required in various life situations. And develop their awareness of the	English	Theoretical lectures	Dailyquizzes
5-6	2	importance of English as a means of international communication.	English	Theoretical lectures	Dailyquizzes
7-8	2	Grammar ( There is/are, preposition ).Pronunciation	English	Theoretical lectures	Dailyquizzes
9	2	. Translation.Everyday English ( Directions )	English	Theoretical lectures	Dailyquizzes
10	2	Grammar (was/ were, past tense , irregular verbs). Writing( Famous people ). Vocabulary ( Words groups) .	English	Theoretical lectures	Dailyquizzes
11	2	Past tense ( We had a good time ).Grammar ( past simple, regular verbs, irregular verbs) . Listening ( Mike's	English	Theoretical lectures	Dailyquizzes
12	2	day), Writing ( Last Saturday).Questions ( Where, What, Who, etc.).Everyday English ( Fill in forms ) Exercises .Activities ( We can do it ).Listening ( Can I be in your Pop group ? ).	English	Theoretical lectures	Dailyquizzes
13-14	2	Pronunciation ( can / can't ).	English	Theoretical lectures	Annual exam
15	2	Requests and offers .Everyday English ( What is the problem?) . Vocabulary ( odd one out Exercises.Asking politely ( I want , would like ). Speaking in the restaurant ( food and drink )Translation .	English	Theoretical lectures	Annual exam

## 11.Course Evaluation

The evaluation method is as follows:30% for the theoretical exam outside of As for the final examination, 70% for the theoretical

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Headway
Main references (sources)	British council website
Recommended books and references (scientific journals, reports...)	Basics of the English language
Electronic References, Websites	Virtual electronic library

## Second Year / First Semester Course Description Form

1. Course Name:	
Industrial principles	
2. Course Code:	
unavailable	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
22\11\2024	
5. Available Attendance Forms:	
Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75H ,5U	
7. Course administrator's name (mention all, if more than one name)	
Name: Hassan Adheem Abbas, hawraa salah Email: nb.hsn4@atu.edu.iq	
8. Course Objectives	
Course Objectives	• Understanding the nature of the

pharmaceutical industry and its importance in the healthcare sector.

- Reviewing the key stages in the drug lifecycle, from research and development to production and distribution.
- Preparation techniques such as tablets, capsules, injections, and solutions.

### 9. Teaching and Learning Strategies

<b>Strategy</b>	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue
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### 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to industrial pharmacy: 1. Definition, development processes. 2. Practical compounding, packaging, pharmaceutical department.	Industrial Principles	Theoretical lectures	Annual exam
2	2	Introduction to pharmaceutical processes, large-scale production, accuracy, economy.	Industrial Principles	Theoretical lectures	Annual exam
3	2	Reasons behind large-scale production.	Industrial Principles	Theoretical lectures	Annual exam
4	2	Size reduction, units of pharmaceutical industry, heat transfer, mass transfer.	Industrial Principles	Theoretical lectures	Annual exam
5	2	Particle size: definition.	Industrial Principles	Theoretical lectures	Annual exam
6	2	Particle size-distribution and analysis.	Industrial Principles	Theoretical lectures	Annual exam
7	2	Size reduction, energy needed for size reduction, methods of size reduction.	Industrial Principles	Theoretical lectures	Annual exam
8	2	Sieving: mechanical sieving.	Industrial Principles	Theoretical lectures	Annual exam
9	2	Mixing: types of mixing.	Industrial Principles	Theoretical lectures	Annual exam
10	2	Types of mixtures: liquid and powder mixing, powder presentation.	Industrial Principles	Theoretical lectures	Annual exam

11	2	Drying.	Industrial Principles	Theoretical lectures	Annual exam
12	2	Evaporation: factors affecting evaporation.	Industrial Principles	Theoretical lectures	Annual exam
13-14	2	Filtration: properties and factors affecting filtration. Extraction: theory of extraction, methods of extraction.	Industrial Principles	Theoretical lectures	Annual exam
15	2	Semisolid preparations. Effervescent preparation.	Industrial Principles	Theoretical lectures	Annual exam
1	3	Industrial pharmacy definition and department industrial pharmacy, size reduction.	Industrial Principles	Practical	Dailyquizzes
2	3	Classification of mills and crushers.	Industrial Principles	Practical	Dailyquizzes
3-4	3	Size reduction: definition, mechanism, methods.	Industrial Principles	Practical	Dailyquizzes
5	3	Size separation.	Industrial Principles	Practical	Dailyquizzes
6	3	Mixing.	Industrial Principles	Practical	Dailyquizzes
7-8	3	Extraction: definition, methods of extraction.	Industrial Principles	Practical	Dailyquizzes
9	3	Drying.	Industrial Principles	Practical	Dailyquizzes
10	3	Evaporation.	Industrial Principles	Practical	Dailyquizzes
11	3	Filtration.	Industrial Principles	Practical	Dailyquizzes
12-13	3	Effervescent preparation, methods and preparation of effervescent granules.	Industrial Principles	Practical	Dailyquizzes
14-15	3	Semisolid preparations.	Industrial Principles	Practical	Dailyquizzes

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	International Journal of Pharmaceutics
Recommended books and references (scientific journals, reports...)	Remington: The Science and Practice of Pharmacy"
Electronic References, Websites	Pharmaguideline

## Course Description Form

1. Course Name:	
Pharmaceutical chemistry principles	
2. Course Code:	
Unavailable	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
22\11\2024	
5. Available Attendance Forms:	
Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75H ,5U	
7. Course administrator's name (mention all, if more than one name)	
Name: : prf Sawsan Hassan kadhum Email: Sawsan_hassan@atu.edu.iq	
8. Course Objectives	
Course Objectives	Studying the chemical composition pharmaceutical compounds. Understanding the chemical reactions occurring during drug development and manufacturing. Exploring the relationship between chemical structure and pharmacological activity (Structure-Activity Relationship - SAR).
9. Teaching and Learning Strategies	
Strategy	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	Physicochemical Properties In Relation To Biological Action: drug distribution, drug-receptor interaction, acid-base properties	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
3-4-5	2	Anti-infective Agents: alcohol and related compounds, phenols and their derivatives, oxidizing agents, halogen-containing compounds, dyes, antifungal agents, synthetic antibacterial agents (quinolones, nitrofurans, methenamine), urinary analgesics	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
6-7-8	2	Analgesics: opioids, nonsteroidal anti-inflammatory drugs (NSAIDs), triptans	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
9-10	2	Central Nervous System Depressants: anxiolytics, sedatives, and hypnotics	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
11-12	2	Central Nervous System Stimulants: analeptics, methylxanthines, psychomotor stimulants, antidepressants	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
13	2	Adrenergic Agents: sympathomimetic agents, adrenergic receptor antagonists	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
14	2	Cholinergic Drugs And Related Agents: cholinergic agonists, cholinergic receptor antagonists, neuromuscular blocking agents	Pharmaceutical chemistry principles	Theoretical lectures	Annual exam
1-2	3	Solution preparation: percentage solutions, parts-per-million,	Pharmaceutical chemistry principles	Practical	Annual exam

		dilution and concentration, normality, milliequivalents			
3	3	Preparation of salicylic acid	Pharmaceutical chemistry principles	Practical	Annual exam
4	3	Recrystallization of salicylic acid	Pharmaceutical chemistry principles	Practical	Annual exam
5	3	Synthesis of aspirin	Pharmaceutical chemistry principles	Practical	Annual exam
6	3	Recrystallization of aspirin	Pharmaceutical chemistry principles	Practical	Annual exam
7	3	Assay of aspirin (known sample)	Pharmaceutical chemistry principles	Practical	Annual exam
8	2	Assay of aspirin (unknown sample)	Pharmaceutical chemistry principles	Practical	Annual exam
9	3	Assay of ferrous sulfate (known sample)	Pharmaceutical chemistry principles	Practical	Dailyquizzes
10	3	Assay of ferrous sulfate (unknown sample)	Pharmaceutical chemistry principles	Practical	Dailyquizzes
11	3	The enzymes: factors affecting enzyme activity	Pharmaceutical chemistry principles	Practical	Dailyquizzes
12	3	Synthesis of hexamine	Pharmaceutical chemistry principles	Practical	Dailyquizzes
13	3	Preparation of nitrobenzene	Pharmaceutical chemistry principles	Practical	Dailyquizzes
14	3	Preparation of aniline	Pharmaceutical chemistry principles	Practical	Dailyquizzes
15	3	Preparation of acetanilide	Pharmaceutical chemistry principles	Practical	Dailyquizzes

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Burger's Medicinal Chemistry and Drug Discovery
Recommended books and references (scientific journals, reports...)	Foye's Principles of Medicinal Chemistry
Electronic References, Websites	American Chemical Society (ACS)

1. Course Name:	
Pharmaceuticals	
2. Course Code:	
unavailable	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
22\11\2024	
5. Available Attendance Forms:	
Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75H , 5U	
7. Course administrator's name (mention all, if more than one name)	
Name: Abeer Fadhil Ibrahem Email: <a href="mailto:Inb.abr@atu.edu.iq">Inb.abr@atu.edu.iq</a>	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> <li>• Identifying the scientific principles used in the design of various pharmaceutical forms (such as tablets, capsules, solutions, ointments, and others).</li> <li>• Understanding the properties of active ingredients and how they influence the stability and effectiveness of the pharmaceutical product.</li> <li>• Recognizing the role of excipients enhancing drug characteristics, such as absorption, taste, and ease of use.</li> </ul>
9. Teaching and Learning Strategies	
Strategy	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction, Medical prescription: Definition, parts of prescription	Pharmaceuticals	Theoretical lectures	Annual exam
2	2	Solutions: Definition, benefits, dissolution, stability, coloring, and flavoring	Pharmaceuticals	Theoretical lectures	Annual exam
3	2	Tinctures: Definition, uses, classification with examples	Pharmaceuticals	Theoretical lectures	Annual exam
4-5	2	Semisolid preparations: Ointments, creams, pastes, and gels	Pharmaceuticals	Theoretical lectures	Annual exam
6	2	Eye ointments: Types with examples	Pharmaceuticals	Theoretical lectures	Annual exam
7	2	Solid preparations: Suppositories, capsules, and tablets	Pharmaceuticals	Theoretical lectures	Annual exam
8-9	2	Suppository bases: Types, displacement value, examples with calculation	Pharmaceuticals	Theoretical lectures	Annual exam
10	2	Classification of suppositories: Types, uses, preparation methods, and mold lubrication	Pharmaceuticals	Theoretical lectures	Annual exam
11-12	2	Capsules: Definition, types, and therapeutic uses	Pharmaceuticals	Theoretical lectures	Annual exam
13-14	2	Medical tablets: Types, preparation methods, granulation, granulating agents, binders, disintegrating agents, coloring and flavoring agents, and examples	Pharmaceuticals	Theoretical lectures	Annual exam
15	2	Standardization of medical tablets	Pharmaceuticals	Theoretical lectures	Annual exam
1	3	Weights & Volumes used in the pharmacy lab; measuring containers used in the lab	Pharmaceuticals	Practical	Annual exam

2	3	Isotonic solutions: Sodium chloride, glucose saline solution	Pharmaceuticals	Practical	Annual exam
3	3	Strong solution of iodine, weak solution of iodine, aqueous iodine solution, solution of balsam of tolue	Pharmaceuticals	Practical	Annual exam
4	3	Tinctures: Belladonna tincture, concentrated camphor tincture	Pharmaceuticals	Practical	Dailyquizzes
5	3	Simple ointment, paraffin ointment	Pharmaceuticals	Practical	Dailyquizzes
6	3	Ointment of wool alcohol, hydrous ointment	Pharmaceuticals	Practical	Dailyquizzes
7	3	Zinc & castor oil ointment, salicylic acid ointment	Pharmaceuticals	Practical	Dailyquizzes
8	3	Boric acid ointment, hydrocortisone ointment, rose water ointment	Pharmaceuticals	Practical	Dailyquizzes
9	3	Hydrocortisone eye ointment, sulfacetamide eye ointment	Pharmaceuticals	Practical	Dailyquizzes
10	3	Suppositories: Tannic acid, resorcinol, and zinc oxide suppository	Pharmaceuticals	Practical	Dailyquizzes
11	3	Chloral hydrate suppository, phenol suppository	Pharmaceuticals	Practical	Dailyquizzes
12	3	Glycerine suppository BP, gelato-glycerine suppository BP	Pharmaceuticals	Practical	Dailyquizzes
13	3	Capsules: Parts of capsules, method of preparation (demonstration)	Pharmaceuticals	Practical	Dailyquizzes
14	3	Medical tablets: Methods of preparation of potassium bromide, aspirin, and flavored sodium bicarbonate lozenges	Pharmaceuticals	Practical	Dailyquizzes
15	3	Examination	Pharmaceuticals	Practical	Dailyquizzes

### 11.Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### Learning and Teaching Resources

Required textbooks (curricular books, if any)

Lectures provided by the course instructor

Main references (sources)

Pharmaceutical Dosage Forms and Drug Delivery

	Systems
Recommended books and references (scientific journals, reports...)	Modern Pharmaceutics
Electronic References, Websites	International Journal of Pharmaceutics

## Course Description Form

1. Course Name:	
Principles of drugs	
2. Course Code:	
Unavailable	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
22\11\2024	
5. Available Attendance Forms:	
Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
75H ,5U	
7. Course administrator's name (mention all, if more than one name)	
Name: Hassan Adheem Abbas . hawraa ali Email: nb.hsn4@atu.edu.iq . hawraa.ali.iba15@atu.edu.iq	
8. Course Objectives	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>Understand the fundamental concepts of pharmacology, including the definition of a drug, its role, and its mechanism of action in the body.</li> <li>Study the different types of</li> </ul>

medications (such as tablets, capsules, ointments, and injections) and the reasons for using each type..

## 9. Teaching and Learning Strategies

<b>Strategy</b>	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue
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## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	General aspects of pharmacology: general definitions, drugs and doses, routes of drug administration, drug nomenclature, and classification.	Principles of drugs	Theoretical lectures	Annual exam
2-3	2	Pharmacodynamics: drug-receptor interactions.	Principles of drugs	Theoretical lectures	Annual exam
4-5	2	Drugs affecting the gastrointestinal system.	Principles of drugs	Theoretical lectures	Annual exam
6-8	2	Drugs affecting cardiovascular disorders.	Principles of drugs	Theoretical lectures	Annual exam
9-10	2	Drugs used for metabolic disorders.	Principles of drugs	Theoretical lectures	Annual exam
11-12	2	Sex hormones and anterior pituitary stimulants.	Principles of drugs	Theoretical lectures	Annual exam
13-15	2	Advanced topics (to be determined).	Principles of drugs	Theoretical lectures	Annual exam
1-2	3	Routes of drug administration.	Principles of drugs	Practical	Dailyquizzes
3-6	3	Absorption and excretion of drugs (Iodine and Salicylates).	Principles of drugs	Practical	Dailyquizzes
7-9	3	Drug antagonism:	Principles of drugs	Practical	Dailyquizzes
10-12	3	Effects of parasympathomimetic drugs on glandular secretions.	Principles of drugs	Practical	Dailyquizzes

13-15	3	Evaluation of analgesics.	Principles of drugs	Practical	Dailyquizzes
<b>11. Course Evaluation</b>					
The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical					
<b>Learning and Teaching Resources</b>					
Required textbooks (curricular books, if any)			Lectures provided by the course instructor		
Main references (sources)			Khan Academy		
Recommended books and references (scientific journals, reports...)			Basic Pharmacology		
Electronic References, Websites			ScienceDirect		

Theoretical subjects

## Course Description Form

<b>1. Course Name:</b>
Basics of therapeutic application
<b>2. Course Code:</b>
unavailable
<b>3. Semester / Year:</b>
Semester
<b>4. Description Preparation Date:</b>
22\11\2024
<b>5. Available Attendance Forms:</b>
Lectures
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>
60H,4U
<b>7. Course administrator's name (mention all, if more than one name)</b>
Name: Saif Anwar Jaafar Email: saif.nori@atu.edu.iq
<b>8. Course Objectives</b>

<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• Introducing students to the fundamental concepts of therapeutic applications and the use of medications in treating various diseases.</li> <li>• Enabling students to select the most appropriate medication based on the patient's clinical condition and the nature of the disease.</li> <li>• Empowering students to connect basic scientific principles with practical applications in hospitals, factories, and private pharmacies.</li> </ul>
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### 9. Teaching and Learning Strategies

<b>Strategy</b>	<p>The theoretical lecture method.          Scientific lecture method.          Method of discussion and dialogue</p>
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### 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	2	Drugs affecting the gastrointestinal system: Antacids, carminatives, emetics and antiemetics, laxatives, and antidiarrheal drugs.	Basics of therapeutic application	Theoretical lectures	Annual exam
4	2	Visit to a private or government pharmacy and prepare a report on the available medications.	Basics of therapeutic application	Theoretical lectures	Annual exam
5-6	2	Drugs affecting the urinary system: Diuretics and treatment for nocturnal enuresis.	Basics of therapeutic application	Theoretical lectures	Annual exam
7	2	Visit to the institute library and prepare a report on diuretics.	Basics of therapeutic application	Theoretical lectures	Annual exam
8-10	2	Drugs affecting the cardiovascular system: Antianginal	Basics of therapeutic application	Theoretical lectures	Annual exam

		drugs, antihypertensive and hypotensive drugs, vasodilators, and vasoconstrictors.			
11	2	Research on medical websites.	Basics of therapeutic application	Theoretical lectures	Annual exam
12-15	2	Drugs affecting the respiratory system: Antihistamines, bronchodilators, respiratory stimulants, and anticonvulsants.	Basics of therapeutic application	Theoretical lectures	Annual exam
1-3	3	Drugs affecting the gastrointestinal system: Antacids, carminatives, emetics and antiemetics, laxatives, and antidiarrheal drugs.	Basics of therapeutic application	Practical	Dailyquizzes
4	3	Visit to a private or government pharmacy and prepare a report on the available medications.	Basics of therapeutic application	Practical	Dailyquizzes
5-6	3	Drugs affecting the urinary system: Diuretics and treatment for nocturnal enuresis.	Basics of therapeutic application	Practical	Dailyquizzes
7	3	Visit to the institute library and prepare a report on diuretics.	Basics of therapeutic application	Practical	Dailyquizzes
8-10	3	Drugs affecting the cardiovascular system: Antianginal drugs, antihypertensive and hypotensive drugs, vasodilators, and vasoconstrictors.	Basics of therapeutic application	Practical	Dailyquizzes
11		Research on medical websites.	Basics of therapeutic application	Practical	Dailyquizzes
12-15		Drugs affecting the respiratory system: Antihistamines, bronchodilators, respiratory stimulants, and anticonvulsants.	Basics of therapeutic application	Practical	Dailyquizzes

### 11. Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Lectures provided by the course instructor

Main references (sources)	Drug Information Handbook by
Recommended books and references (scientific journals, reports...)	Lexicomp
Electronic References, Websites	Rang and Dale's Pharmacology

## Course Description Form

<b>1. Course Name:</b>	
Medical planta and natural products	
<b>2. Course Code:</b>	
unavailable	
<b>3. Semester / Year:</b>	
Semester	
<b>4. Description Preparation Date:</b>	
22\11\2024	
<b>5. Available Attendance Forms:</b>	
Lectures	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
60H,4U	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Qusay Abdulhamza Muttaleb	
Email: qusay.muttaleb@atu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>Identifying medicinal plants and the natural products extracted from them and their role in pharmaceutical production.</li> <li>Studying the classification of medicinal plants and how to identify and utilize them.</li> <li>Understanding biologically active compounds (such as alkaloids, flavonoids, and essential oils) and their pharmacological mechanisms</li> </ul>

	of action
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## 9. Teaching and Learning Strategies

<b>Strategy</b>	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue
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## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	2	Collection and preparation of medicinal plants: methods of collection, drying techniques, storage, and conditions of storage.	Medical planta and natural products	Theoretical lectures	Annual exam
4-5	2	Classification of medicinal plants:	Medical planta and natural products	Theoretical lectures	Annual exam
6-10	2	Evaluation of medicinal plants includes:	Medical planta and natural products	Theoretical lectures	Annual exam
11-12	2	Carbohydrates and medicinal plants containing carbohydrates	Medical planta and natural products	Theoretical lectures	Annual exam
13-14	2	Glycosides and plants containing glycosides	Medical planta and natural products	Theoretical lectures	Annual exam
15	2	Poisonous plants	Medical planta and natural products	Theoretical lectures	Annual exam
1	2	Introduction to the microscope and its types	Medical planta and natural products	Practical	Annual exam
2	2	Microscopic evaluation of drugs	Medical planta and natural products	Practical	Dailyquizzes
3-4	2	Plant cells:1 Cell wall	Medical planta and natural products	Practical	Dailyquizzes
5-6-7	2	2. Tests for cellulose	Medical planta and natural products	Practical	Dailyquizzes
8	2	3. Test for lignin	Medical planta and natural products	Practical	Dailyquizzes
9	2	Cell contents:1 Starch granules	Medical planta and natural products	Practical	Dailyquizzes
10-13	2	2. Types and shapes of starch granules	Medical planta and natural products	Practical	Dailyquizzes
14	2	3. Microscopic study of starch grains	Medical planta and natural products	Practical	Dailyquizzes

11.Course Evaluation	
The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Drug Information Handbook by Lexicomp
Recommended books and references (scientific journals, reports...)	Rang and Dale's Pharmacology
Electronic References, Websites	للتعرف موقع <i>Drugs.com</i> على أسماء الأدوية التجارية واستخداماتها

### Course Description Form

1) Course Name:
Toxicology
2) Course Code:
unavailable
3) Semester / Year:
Semester
4) Description Preparation Date:
22\11\2024
5) Available Attendance Forms:
Lectures
6) Number of Credit Hours (Total) / Number of Units (Total)
30H , 2U
7) Course administrator's name (mention all, if more than one name)
Name: Abbas Razaq Abd Email:

## 8) Course Objectives

### Course Objectives

The study of various toxins, including plant toxins, animal toxins, and chemical substances, and understanding their effects on the human body. Classification of toxins based on their source (natural, synthetic) or their effects (acute toxins, chronic toxins). The study of how toxins interact with drugs and other substances in the body.

## 9) Teaching and Learning Strategies

### Strategy

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

## 10) Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to Toxicology: Terminology and Classification of Toxic Substances	Toxicology	Theoretical lectures	Annual exam
2	2	Principles of Toxicology	Toxicology	Theoretical lectures	Annual exam
3	2	Mechanisms of Toxin Action, Principles of Poisoning Treatment, Types of Antidotes	Toxicology	Theoretical lectures	Annual exam
4	2	Toxicant Disposition: Absorption, Distribution, Biotransformation, and Excretion	Toxicology	Theoretical lectures	Annual exam
5	2	Toxic Agents: Pesticides, Heavy Metals, Solvents, and Vapors	Toxicology	Theoretical lectures	Annual exam
6	2	Drug Poisoning: NSAIDs, Barbiturates, Benzodiazepines	Toxicology	Theoretical lectures	Annual exam
7	2	Poisoning from Antidepressants, Nicotine, and Alcohol	Toxicology	Practical	Annual exam
8	2	Poisoning by	Toxicology	Practical	Daily quizzes

		Cyanide, Carbon Monoxide, and Carbon Dioxide			
9	2	Poisoning by Anticholinergic Drugs	Toxicology	Theoretical lectures	Dailyquizzes
10	2	Radiation and Radioactive Materials	Toxicology	Theoretical lectures	Dailyquizzes
11	2	Environmental Toxins: Air Pollution, Smoke, and Smog	Toxicology	Theoretical lectures	Dailyquizzes
12	2	Food Poisoning: Bacterial Poisoning, Aflatoxins, and Fungi	Toxicology	Theoretical lectures	Dailyquizzes
13	2	Occupational Toxicology	Toxicology	Theoretical lectures	Dailyquizzes
14	2	Drug Toxicity During Pregnancy	Toxicology	Theoretical lectures	Dailyquizzes
15	2	Chemical Carcinogens	Toxicology	Theoretical lectures	Dailyquizzes

### 11) Course Evaluation

The evaluation method is as follows: the theoretical exam outside of 30%. As for the final examination, 70% for the theoretical

### 12) Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Basic and Clinical Toxicology by J. O. O'Mear
Recommended books and references (scientific journals, reports...)	Toxicology: Principles and Applications by S. S. Sahu
Electronic References, Websites	Clinical Toxicology by P. S. S. M. Gupta

## Course Description Form

1) Course Name:
Industrial pharmacy
2) Course Code:
Unavailable
3) Semester / Year:
Semester
4) Description Preparation Date:
2025\1\22

5) Available Attendance Forms:

Lectures

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

Hours 90, 12 Unit

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

Name: Hassan Adheem Abbas, hawraa salah Mahdi

Email: [nb.hsn4@atu.edu.iq](mailto:nb.hsn4@atu.edu.iq) ,hawraa.mahdi.iba7@atu.edu.iq

8) Course Objectives

**Course Objectives**

Enable the students to understand the pharmaceutical preparations, their dosage forms, quality control of them, steps of preparing the pharmaceutical dosage forms and pharmaceutical factories.

9) Teaching and Learning Strategies

**Strategy**

The theoretical lecture method.  
Scientific lecture method.  
Method of discussion and dialogue

10) Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1, 2, 3 & 4	2	Solid dosage forms, steps of manufacturing tablets by single and multi-punch machines.	Industrial pharmacy	Theoretical lectures	Annual exam
5 & 6	2	Preparation materials for tablets, granulation (dry and wet granulation).	Industrial pharmacy	Theoretical lectures	Annual exam
7 & 8	2	Basic components of tablets: diluents, binders, and others.	Industrial pharmacy	Theoretical lectures	Annual exam
9, 10 & 11	2	Packaging, evaluation of tablets. Capsules: materials, preparation	Industrial pharmacy	Theoretical lectures	Annual exam

		steps, machines used, and packaging.			
12	2	Suppositories: basics of the base and uses.	Industrial pharmacy	Theoretical lectures	Annual exam
13	2	Liquid dosage forms: factors affecting them, parenteral preparations, manufacturing steps, and quality control.	Industrial pharmacy	Theoretical lectures	Annual exam
14 & 15	2	Emulsions: preparation, phases, and phase determination. Suspensions: preparation and quality control.	Industrial pharmacy	Practical	Annual exam
16	2	Antibiotics: methods of isolation, production by fungi, quality control, and production methods	Industrial pharmacy	Theoretical lectures	Annual exam
1, 2 & 3	3	Tablet dosage form.	Industrial pharmacy	Practical	Dailyquizzes
4	3	Evaluation of tablets.	Industrial pharmacy	Practical	Dailyquizzes
5 & 6	3	Dissolution rate.	Industrial pharmacy	Practical	Dailyquizzes
7, 8 & 9	3	Disintegration rate.	Industrial pharmacy	Practical	Dailyquizzes
10, 11 & 12	3	Capsules.	Industrial pharmacy	Practical	Dailyquizzes
13	3	Suppositories.	Industrial pharmacy	Practical	Dailyquizzes
14	3	Liquid dosage forms.	Industrial pharmacy	Practical	Dailyquizzes
15	3	Suspension.	Industrial pharmacy	Practical	Dailyquizzes
16	3	Emulsion.	Industrial pharmacy	Practical	Dailyquizzes
17	3	Semisolid preparation.	Industrial pharmacy	Practical	Dailyquizzes
18	3	Packaging.	Industrial pharmacy	Practical	Dailyquizzes
19	3	Review.	Industrial pharmacy	Practical	Dailyquizzes
20	3	Examinatio	Industrial pharmacy	Practical	Dailyquizzes

### 11) Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12) Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Pharmaceutical Manufacturing Handbook: Production Processes

Recommended books and references (scientific journals, reports...)	Modern Pharmaceutics
Electronic References, Websites	FD Good Manufacturing Practices (GMP)

### Course Description Form

1) Course Name:	
Applied Therapeutic	
2) Course Code:	
Unavailable	
3) Semester / Year:	
Semester	
4) Description Preparation Date:	
2025\1\22	
5) Available Attendance Forms:	
Lectures	
6) Number of Credit Hours (Total) / Number of Units (Total)	
Hours 45, 6 Unit	
7) Course administrator's name (mention all, if more than one name)	
Name: : Saif Anwar Jaafar Email: saif.nori@atu.edu.iq	
8) Course Objectives	
<b>Course Objectives</b>	Enable the students to correlate between the basic and scientific principles and practical applications in hospitals, factories, and private pharmacy. Understanding usage of drugs according to the trade name, methods of dispensing and registering, ordering, storage conditions, expire date, dealing with the expired drugs and how to write the information about dispensing drugs
9) Teaching and Learning Strategies	
<b>Strategy</b>	The theoretical lecture method. Scientific lecture method.

Method of discussion and dialogue

10) Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 – 3	2	Antibiotics and chemotherapeutics.	Applied Therapeutic	Theoretical lectures Practical	Annual exam
4 – 6	2	Antiseptics and disinfectants.	Applied Therapeutic	Theoretical lectures Practical	Annual exam
7 – 13	2	Drugs affecting the central nervous system (CNS): analgesics, narcotics, sedatives, hypnotics, antiepileptic drugs, CNS stimulants, and anesthetics.	Applied Therapeutic	Theoretical lectures  Practical	Annual exam
14 – 15	2	Scientific visit to pharmaceutical factories and hospitals	Applied Therapeutic	Theoretical lectures Practical	Annual exam

11) Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

12) Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Journal of Clinical Pharmacy and Therapeutics
Recommended books and references (scientific journals, reports...)	. Remington: The Science and Practice of Pharmacy
Electronic References, Websites	PubMed

1) Course Name:

Pharmacology

2) Course Code:

Unavailable

3) Semester / Year:

Semester

4) Description Preparation Date:

2025\1\22					
5) Available Attendance Forms:					
Lectures					
6) Number of Credit Hours (Total) / Number of Units (Total)					
Hours 60, 8Unit					
7) Course administrator's name (mention all, if more than one name)					
Name: Abeer Fadhil Ibrahem Email: Inb.abr@atu.edu.i					
8) Course Objectives					
Course Objectives			<ul style="list-style-type: none"> <li>• Understanding the fundamentals of pharmacology.</li> <li>• Learning the mechanism of action of drugs in the body.</li> <li>• Recognizing therapeutic uses and potential side effects of medications.</li> </ul>		
9) Teaching and Learning Strategies					
Strategy		The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue			
10) Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1, 2, 3, 4	2	Central Nervous System (CNS): Introduction to CNS Pharmacology, Opiates, Sedatives & Hypnotics, Antipsychotic & Antidepressant Drugs, Drug Abuse, and Skeletal Muscle Relaxants.	Pharmacology	Theoretical lectures Practical	Annual exam
5, 6, 7, 8	2	Antibiotics:	Pharmacology	Theoretical lectures	Annual exam

		Introduction, Cell Wall Inhibitors, Protein Synthesis Inhibitors, Quinolones, Folate Antagonists, Urinary Tract Antiseptics, Antimycobacterial Drugs, Antifungal Drugs, and Antiviral Drugs.		Practical	
9, 10	2	Non-Steroidal Anti-Inflammatory Drugs (NSAIDs): DMRDs, TNF- $\alpha$ Inhibitors, Gout, and Migraine.	Pharmacology	Theoretical lectures Practical	Annual exam
11, 12	2	Drugs Used in Pulmonary Disorders: Asthma and Chronic Obstructive Pulmonary Disease (COPD).	Pharmacology	Theoretical lectures Practical	Annual exam
13, 14, 15		Immunopharmacology: Introduction to the Immune System, Immunosuppressive Drugs, and Cancer Chemotherapy	Pharmacology	Theoretical lectures Practical	Annual exam

### 11) Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12) Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Basic and Clinical Pharmacology
Recommended books and references (scientific journals, reports...)	. Pharmacology and Therapeutics
Electronic References, Websites	World Health Organization (WHO)

#### 1) Course Name:

Pharmaceutical formulation

#### 2) Course Code:

Unavailable

#### 3) Semester / Year:

Semester

#### 4) Description Preparation Date:

2025\1\22

#### 5) Available Attendance Forms:

<b>Lectures</b>					
6) Number of Credit Hours (Total) / Number of Units (Total)					
Hours 90, 12Unit					
7) Course administrator's name (mention all, if more than one name)					
Name: Hassan Adheem Abbas, : hawraa ali Email: <a href="mailto:nb.hsn4@atu.edu.iq">nb.hsn4@atu.edu.iq</a> , hawraa.ali.iba15@atu.edu.iq					
8) Course Objectives					
<b>Course Objectives</b>			Introducing the student to the basic principles of pharmaceutical formulation and development. Understanding the relationship between the properties of active and excipient materials and their impact on the quality of the pharmaceutical product.		
9) Teaching and Learning Strategies					
<b>Strategy</b>		The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue			
10) Course Structure					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>
1 & 2	2	Medical Drops: Eye drops, nasal drops, and ear drops.	Pharmaceutical formulation	Theoretical lectures	Annual exam
3	2	Aerosols: Definition and examples.	Pharmaceutical formulation	Theoretical lectures	Annual exam
4 & 5	2	Medical Injections: Definition, uses, types, classification with examples.	Pharmaceutical formulation	Theoretical lectures	Annual exam
6 & 7	2	Powders and Granules.	Pharmaceutical formulation	Theoretical lectures	Annual exam
8 & 9	2	Suspensions: Definition, types, and	Pharmaceutical formulation	Theoretical lectures	Annual exam

		preparation.			
10	2	Emulsions: Definition and types.	Pharmaceutical formulation	Theoretical lectures	Annual exam
11	2	Collodions: Definition, methods of preparation, and examples.	Pharmaceutical formulation	Theoretical lectures	Annual exam
12	2	Alcohols: Definition, types, and examples.	Pharmaceutical formulation	Theoretical lectures	Annual exam
13	2	Incompatibility: Definition, types of incompatibility with examples.	Pharmaceutical formulation	Theoretical lectures	Annual exam
14	2	The Phenomena of Incompatibility: General methods for treatment of incompatibility.	Pharmaceutical formulation	Theoretical lectures	Annual exam
15	2	Review.	Pharmaceutical formulation	Theoretical lectures	Annual exam
16	2	Examination	Pharmaceutical formulation	Theoretical lectures	Annual exam
1 & 2	3	Drops: Eye drops (Zinc Sulphate eye drops, Sulfa-Cetamide eye drops), Nasal drops (Menthol nasal drop), Ear drops (Boric acid-Alcohol ear drops, Sod. Bicarb ear drops).	Pharmaceutical formulation	Practical	Dailyquizzes
3 & 4	3	Medical Injections: Types, method of preparation (Demonstration).	Pharmaceutical formulation	Practical	Dailyquizzes
5	3	Suspensions.	Pharmaceutical formulation	Practical	Dailyquizzes
6	3	Emulsions.	Pharmaceutical formulation	Practical	Dailyquizzes
7	3	Collodion: Pyroxylin collodion, Salicylic acid collodion.	Pharmaceutical formulation	Practical	Dailyquizzes
8	3	Spirits.	Pharmaceutical formulation	Practical	Dailyquizzes
9	3	Alcohols.	Pharmaceutical formulation	Practical	Dailyquizzes
10	3	Incompatibility of Sodium Salicylate and Sodium Benzoate with acids.	Pharmaceutical formulation	Practical	Dailyquizzes
11	3	Incompatibility of Borax with Glycerine in the presence of Sodium Bicarbonate.	Pharmaceutical formulation	Practical	Dailyquizzes
12	3	Incompatibility of Sodium Bicarbonate or Potassium Bicarbonate with Soluble Calcium or Magnesium Salts.	Pharmaceutical formulation	Practical	Dailyquizzes
13	3	Powders.	Pharmaceutical	Practical	Dailyquizzes

			formulation		
14	3	Effervescent Granules.	Pharmaceutical formulation	Practical	Dailyquizzes
15	3	Review.	Pharmaceutical formulation	Practical	Dailyquizzes
16	3	Examinatio	Pharmaceutical formulation	Practical	Dailyquizzes

### 11) Course Evaluation

The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical

### 12) Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Basic and Clinical Pharmacology
Recommended books and references (scientific journals, reports...)	. Pharmacology and Therapeutics
Electronic References, Websites	World Health Organization (WHO)

#### 1) Course Name:

Pharmaceutical chemistry

#### 2) Course Code:

unavailable

#### 3) Semester / Year:

Semester

#### 4) Description Preparation Date:

2025\1\22

#### 5) Available Attendance Forms:

Lectures

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

90H ,6 U

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

Name: : prf Sawsan Hassan kadhum

Email: Sawsan\_hassan@atu.edu.iq

#### 8) Course Objectives

Course Objectives

1- Diagnosis of various types of pharmaceutical compounds based on the qualities chemical

	Alvezo. 2 - to know the relationship between the chemical composition of the drugs pharmaceutical and medical effectiveness and reliability 3 - Understanding the compatibility and mechanical to receive drugs medical effectiveness. 4 - Understanding the relationship between the chemical composition and the effectiveness of the drugs. 5 - Understanding chemical reactions for prescription drugs with each other (drug interactions)
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### 9) Teaching and Learning Strategies

<b>Strategy</b>	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue
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### 10) Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2-3	2	Antibacterial Antibiotics: Penicillins, Cephalosporins, Aminoglycosides, Tetracyclines, Macrolides.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
4-5	2	Drugs Acting on Renal System: ACE inhibitors, Angiotensin 2 receptor blockers, Renin inhibitors, Aldosterone antagonists.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
6-7	2	Cardiovascular Agents: Antianginal agents and vasodilators, Antihypertensive agents, Anticoagulants.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
8-9	2	Synthetic Hypoglycemic Agents: Sulfonylureas, Nonsulfonylureas (Meglitinides), Biguanides.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
10	2	Anticonvulsants: Barbiturates,	Pharmaceutical chemistry	Theoretical lectures	Annual exam

		Hydantoins, Oxazolidinediones, Succinimides.			
11	2	Steroid Hormones and Therapeutically Related Compounds: Steroid biosynthesis, Sex hormones, Androgens.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
12	2	Histamine and Antihistaminic Agents.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
13	2	Diuretics: Carbonic anhydrase inhibitors, Loop diuretics, Thiazide diuretics, Potassium-sparing diuretics, Miscellaneous diuretics.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
14	2	Vitamins: Water-soluble vitamins, Fat-soluble vitamins.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
15	2	Proteins, Enzymes, and Peptide Hormones: Proteins and protein-like compounds, Enzymes, Hormones.	Pharmaceutical chemistry	Theoretical lectures	Annual exam
1-2-3	3	Synthesis of organic compounds by different approaches involving (3 experiments): a. Oxidation, b. Reduction, c. Nitration.	Pharmaceutical chemistry	Practical	Dailyquizzes
4	3	Preparation and standardization of 0.1N KMnO <sub>4</sub> (known sample).	Pharmaceutical chemistry	Practical	Dailyquizzes
5	3	Preparation and standardization of 0.1N KMnO <sub>4</sub> (quiz and unknown).	Pharmaceutical chemistry	Practical	Dailyquizzes
6	3	Hydrolysis of p-chlorobenzene sulfonyl chloride to sulfanilamide.	Pharmaceutical chemistry	Practical	Dailyquizzes
7	3	Assay of paracetamol.	Pharmaceutical chemistry	Practical	Dailyquizzes
8	3	Assay of ciprofloxacin.	Pharmaceutical chemistry	Practical	Dailyquizzes
9	3	Assay of metronidazole.	Pharmaceutical chemistry	Practical	Dailyquizzes
10	3	Assay of isonicotinic acid hydrazide.	Pharmaceutical chemistry	Practical	Dailyquizzes
11	3	Assay of chlorpheniramine maleate.	Pharmaceutical chemistry	Practical	Dailyquizzes

11) Course Evaluation	
The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical	
12) Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Basic and Clinical Pharmacology
Recommended books and references (scientific journals, reports...)	. Medicinal Plants: Chemistry and Properties" by M Lis-Balchin.
Electronic References, Websites	PubMed
1) Course Name:	
Pharmacognosy	
2) Course Code:	
unavailable	
3) Semester / Year:	
Semester	
4) Description Preparation Date:	
2025\1\22	
5) Available Attendance Forms:	
Lectures	
6) Number of Credit Hours (Total) / Number of Units (Total)	
Hours 45, 6 Unit	
7) Course administrator's name (mention all, if more than one name)	
Name: Abbas Razaq Abd Email:	
8) Course Objectives	
Course Objectives	Enable the students to identify different groups of crude drugs, determine their active ingredients, methods of preparations and uses. The students will be able to know and understand the medicinal plant classes, identify their active constituents, methods of extractions, uses, toxicity and indications.
9) Teaching and Learning Strategies	
Strategy	The theoretical lecture method.

Scientific lecture method.  
Method of discussion and dialogue

10) Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	<b>Tannins:</b> Definition, properties, classification, examples	Pharmacognosy for drugs belonging to each	Theoretical lectures	Annual exam
3-4	2	<b>Lipids:</b> Definition, types, comparison between fats, oils, and waxes, isolation, examples, pharmaceutical and medical uses.	Pharmacognosy	Theoretical lectures	Annual exam
5	2	<b>Resins and Balsams:</b> Definition of resins and balsams.	Pharmacognosy	Theoretical lectures	Annual exam
6-7-8	2	<b>Volatile Oils:</b> Definition, general properties, general and medical uses, classification, and examples of drugs containing volatile oils.	Pharmacognosy	Theoretical lectures	Annual exam
9	2	<b>Alkaloids:</b> Definition, properties, classification, examples of drugs containing alkaloids, and their medical uses.	Pharmacognosy	Theoretical lectures	Annual exam
10-11	2	<b>Chromatography:</b> Definition, uses, types of chromatography.	Pharmacognosy	Theoretical lectures	Annual exam
12-13	2	<b>Antibiotics:</b> Definition, classification, examples, antibacterials, antifungal antibiotics, and antihelmintics.	Pharmacognosy	Theoretical lectures	Annual exam
14-15	2	<b>Hormonal Drugs and Vitamins:</b> - Hormones: Definition, extraction and storage, types of glands and hormones with medical uses. - Vitamins: Definition, types, examples of water-soluble vitamins with natural sources and uses, fat-soluble vitamins with natural sources and use	Pharmacognosy	Theoretical lectures	Annual exam
1	2	Chemical tests for tannins.	Pharmacognosy	Practical	Practical
2-3-4-5	2	Calcium Oxalate Crystals: a. Their shapes.	Pharmacognosy	Practical	Practical
6-7	2	b. Microscopic study for calcium oxalate crystals. c. Chemo-microscopic tests for calcium oxalate crystals.	Pharmacognosy	Practical	Dailyquizzes
8-9	2	d. Microscopic study for stone cells.	Pharmacognosy	Practical	Dailyquizzes
10-11	2	Hydrolysis of cellulose.	Pharmacognosy	Practical	Dailyquizzes
12-13	2	Methods of Extraction and Isolation: - Mechanisms of chromatography.	Pharmacognosy	Practical	Dailyquizzes
14	2	- Types of chromatography.	Pharmacognosy	Practical	Dailyquizzes
15	2	- Paper chromatography.	Pharmacognosy	Practical	Dailyquizzes

11) Course Evaluation	
The evaluation method is as follows: 15% for the practical exam and 25% for the theoretical exam outside of 40%. As for the final examination, it is 25% for the practical exam and 35% for the theoretical	
12) Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Basic and Clinical Pharmacology
Recommended books and references (scientific journals, reports...)	. Pharmacology and Therapeutics
Electronic References, Websites	World Health Organization (WHO)
1) Course Name:	
Professional Ethics	
2) Course Code:	
Unavailable	
3) Semester / Year:	
Semester	
4) Description Preparation Date:	
2025\1\22	
5) Available Attendance Forms:	
Lectures	
6) Number of Credit Hours (Total) / Number of Units (Total)	
Hours 30, 2 Unit	
7) Course administrator's name (mention all, if more than one name)	
Name: Qusay Abdulhamza Muttaleb Email: qusay.muttaleb@atu.edu.qi	
8) Course Objectives	
Course Objectives	<p><b>General Objective:</b> Understanding the basic ethics of professional conduct for workers in medical specialties.</p> <p><b>Specific Objective:</b> Preparing graduates for professional behavior in their interactions with their profession, achieving harmony with themselves and their professional</p>

environment (patients and their companions in the healthcare field, as well as medical devices).

### 9) Teaching and Learning Strategies

<b>Strategy</b>	The theoretical lecture method. Scientific lecture method. Method of discussion and dialogue
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### 10) Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	- Principles of professional ethics throughout historical developments.	Professional Ethics	Theoretical lectures	Annual exam
Second	2	- Ethics of the profession in Islamic and Arab civilizations.	Professional Ethics	Theoretical lectures	Annual exam
Third	2	- Ethics of dealing with patients in hospitals from the past to the present.	Professional Ethics	Theoretical lectures	Annual exam
Fourth	2	- Professional behavior: Definition, concept, practical applications, relationship between employees and supervisors.	Professional Ethics	Theoretical lectures	Annual exam
Fifth	2	- Basic ethics of the profession: Characteristics as a guide for behavior, how to use them to direct personal behavior and decision-making.	Professional Ethics	Theoretical lectures	Annual exam
Sixth	2	- Characteristics and qualities of healthcare workers (appearance, behavior, commitment).	Professional Ethics	Theoretical lectures	Annual exam
Seventh	2	- Ethical and legal rights of patients.	Professional Ethics	Theoretical lectures	Annual exam
Eighth	2	- Dealing with patient	Professional Ethics	Theoretical lectures	Annual exam

		behavior and their companions.			
Ninth	2	- Behavioral patterns: human, interactive, and collective (definition, nature, motivations, interpretations).	Professional Ethics	Theoretical lectures	Annual exam
Tenth	2	- Verbal and non-verbal communication methods (definition, types, effects, designing effective methods).	Professional Ethics	Theoretical lectures	Annual exam
Eleventh	2	- The impact of communication methods on behavior and the art of listening with practical examples.	Professional Ethics	Theoretical lectures	Dailyquizzes
Twelfth	2	- Behavioral attitudes and tendencies: definition, classification, influencing factors, measurement methods.	Professional Ethics	Theoretical lectures	Dailyquizzes
Thirteenth	2	- Values, customs, and traditions: definition, classification, influencing factors, measurement methods.	Professional Ethics	Theoretical lectures	Dailyquizzes

### 11) Course Evaluation

The evaluation method is as follows:30%. As for the final examination, 70% for the theoretical

### 12) Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures provided by the course instructor
Main references (sources)	Medical Ethics Journal
Recommended books and references (scientific journals, reports...)	Professional Ethics in the Healthcare Field
Electronic References, Websites	National Institutes of Health Website