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

2025-2024

Introduction:

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

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

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies

T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

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

Concepts and terminology:

Academic Program Description: We aspire to be creative, pioneering, and innovative in the field of pharmaceutical sciences and drug compounds, and to achieve quality in all our work in order to produce distinguished pharmacists who serve the nation in all state institutions and the private sector for the prosperity and advancement of our dear homeland."

Course Description: Working on developing the knowledge and skills necessary to practice pharmacy at the best and highest levels, advancing it and keeping pace with scientific and global developments to achieve the highest quality and provide the best healthcare services, and supplying society with pharmacists distinguished by skill, competence, and the highest ethical values. Also working on developing the skills, abilities, and knowledge of faculty members and relevant individuals, and advancing purposeful and distinguished scientific and applied research..

Program Vision: We aspire to be creative, pioneering, and innovative in the field of pharmaceutical sciences and drug compounds, and to achieve quality in all our endeavors in order to produce distinguished pharmacists who serve the nation in all state institutions and the private sector, for the prosperity and advancement of our beloved homeland.

Program Mission: Working on developing the knowledge and skills necessary for practicing pharmacy at the best and highest levels, advancing the profession, and keeping pace with scientific and global developments to achieve the highest quality and provide the best healthcare services. Additionally, supplying society with pharmacists distinguished by skill, competence, and the highest ethical values, and working on developing the skills, capabilities, and knowledge of faculty members and stakeholders, as well as advancing purposeful and distinguished scientific and applied research.

Program Objectives: • **Graduating competent, qualified, and highly skilled pharmacists in the field of pharmaceutical sciences who possess the scientific capability to conduct research in various areas of pharmaceutical sciences.**

- **Developing medications and drugs, and contributing to the improvement of the healthcare sector.**

- **Supplying the public and private sectors with pharmacists who uphold high professional ethics and treat others with humanity.**

- **Contributing to the enrichment and enhancement of pharmaceutical knowledge within the community through the organization and delivery of educational seminars, ensuring the college fulfills its societal mission.**

- **Conducting scientific research that advances pharmaceutical industries, solves problems, and supports and enhances fields of study in scientific research.**

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly) 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.

وزارة التعليم العالي والبحث العلمي
Ministry of Higher Education & Scientific Research

جامعة كلكامش
GILGAMESH UNIVERSITY

Academic Program Description Form

University Name: Gilgamesh University

Faculty/Institute: College of Pharmacy

Academic or Professional Program Name:

Final Certificate Name: Bachelor of Pharmacy

Academic System: .....

Description Preparation Date: Quarterly

File Completion Date:

Signature:

Head of Department Name:

Date:

Signature:

Scientific Associate Name:

د. أحمد ياسين عناية

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

م.د. علي محمد علي النعيمي
عميد كلية الصيدلة / وكالة

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

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

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

4. **Program Accreditation**
Does the program have program accreditation? And from which agency?

5. **Other external influences**
Is there a sponsor for the program?

6. **Program Structure**				
Program Structure	**Number of Courses**	**Credit hours**	**Percentage**	**Reviews***

Institution Requirements	**65**	**181**		
College Requirements				
Department Requirements				
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	
			theoretical	practical
First Year		Analytical Chemistry	3	2
First Year		Human Biology	2	2
First Year		Principles of Pharmacy Practice	2	-
First Year		Mathematics and Biostatistics	3	-
First Year		Computer Science	1	2
First Year		Medical Terminology	1	-
First Year		Democracy & Human right	2	-
First Year		Organic Chemistry I	3	2
First Year		Medical Physics	2	2

First Year		Pharmaceutical Calculations	2	2
First Year		Histology	2	2
First Year		Human Anatomy	1	2
First Year		Computer Science	1	2
Second Year		Medical Microbiology I	3	2
Second Year		Physiology I	3	2
Second Year		Physical Pharmacy I	3	2
Second Year		Organic Chemistry II	3	2
Second Year		Baath Party Crimes	2	-
Second Year		Computer Science	1	2
Second Year		Physiology II	3	2
Second Year		Pharmacognosy I	3	2
Second Year		Medical Microbiology II	3	2
Second Year		Physical Pharmacy II	3	2
Second Year		Organic Chemistry III	2	2
Second Year		Computer Science	1	2
Third Year		Biochemistry I	3	2
Third Year		Pharmaceutical Technology I	3	2
Third Year		Pathophysiology	3	2
Third Year		Inorganic Pharmaceutical Chemistry	2	2

Third Year		Pharmacognosy II	2	2
Third Year		Biochemistry II	3	2
Third Year		Pharmaceutical Technology II	3	2
Third Year		Organic Pharmaceutical Chemistry I	3	2
Third Year		Pharmacognosy III	2	2
Third Year		Pharmacology I	3	-
Third Year		Medical Ethics	1	-
Fourth Year		Organic Pharmaceutical Chemistry II	3	2
Fourth Year		Pharmacology II	3	2
Fourth Year		Clinical Pharmacy I	2	2
Fourth Year		Biopharmaceutics	2	2
Fourth Year		Public Health	2	-
Fourth Year		Organic Pharmaceutical Chemistry III	3	2
Fourth Year		Industrial Pharmacy I	3	2
Fourth Year		General Toxicology	2	2
Fourth Year		Clinical Pharmacy II	2	2
Fourth Year		Pharmacology III	2	-
Fourth Year		Communication skills	2	-
Fifth Year		Industrial Pharmacy II	3	2
Fifth Year		Clinical Chemistry	3	2

Fifth Year		Applied Therapeutics I	3	-
Fifth Year		Clinical Toxicology	2	2
Fifth Year		Organic Pharmaceutical Chemistry IV	2	-
Fifth Year		Hospital Training	-	4
Fifth Year		Advanced Pharmaceutical Analysis	3	2
Fifth Year		Therapeutic Drug Monitoring	2	2
Fifth Year		Pharmacoeconomy	2	-
Fifth Year		Applied Therapeutics II	2	-
Fifth Year		Dosage Form Design	2	-
Fifth Year		Clinical Laboratory Training	-	4
Fifth Year		Pharmaceutical Biotechnology	1	-
Fifth Year		Undergraduate Project	-	2

8. Expected learning outcomes of the program

Knowledge

- **Enabling the student to acquire knowledge in the fundamental subjects of medical and pharmaceutical sciences, including human biology, histology, anatomy, physiology, pathology, immunology, bacteria, and viruses.**

- **Describing the different types of drugs, their therapeutic effects, side effects, and toxicity on the human body.**

- **Understanding the theoretical foundations of manufacturing and evaluating various pharmaceutical dosage forms, as well as the optimal methods for preparation and storage of pharmaceutical products.**

- **Comprehending medical calculations, medical statistics, and medical physics.**

Skills
• **Providing the student with the ability to connect theoretical concepts and practical models to real-world applications by conducting practical experiments in college laboratories and implementing safety instructions during laboratory work.** • **Equipping the graduate with effective communication skills to interact with medical staff, patients, and the community, regardless of their intellectual, social, psychological, or health backgrounds.** • **Working efficiently in pharmacies through comprehensive knowledge of the specific requirements of drug dispensing, guiding patients on proper usage, and providing them with appropriate counseling.**
Ethics
• **Enabling students to work in a team spirit and to use teamwork, leadership, and creative skills.** • **The ability to take responsibility and make correct decisions that serve the patient's best interests.** • **Commitment of the student to the ethics of the pharmacy profession.** • **Applying the principles and methodologies of scientific research when conducting and evaluating pharmaceutical and clinical research, including adherence to research ethics.**

9. Teaching and Learning Strategies

- **Brainstorming Strategy**
- **Group Work Strategy**
- **Discussion Strategy**
- **Case Study Strategy**
- **Inductive Teaching Strategy**
- **Concept Mapping Strategy**
- **Self-Learning Strategy**
- **E-Learning Strategy**

- **Study Strategy**
- **Inference Strategy**
- **Spaced Practice Strategy**
- **Interleaving Strategy**
- **Using Examples Strategy**

10. Evaluation methods

a. Daily quizzes
b. Midterm exams
c. Weekly reports
d. Daily attendance and participation
e. Practical exams in hospitals
f. Graduation research project

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Lecturer	3	6			8	1
Assistant Lecturer	–	5			5	–

Professional Development

Mentoring new faculty members
Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.
Professional development of faculty members
Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

State briefly the sources of information about the program.

14. Program Development Plan

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		Analytical Chemistry		*	*	*	*	*	*	*	*	*	*	*	*
		Human Biology		*	*	*	*	*	*	*	*	*	*	*	*
First Year		Principles of Pharmacy Practice		*	*	*	*	*	*	*	*	*	*	*	*
		Mathematics and Biostatistics		*	*	*	*	*	*	*	*	*	*	*	*
First Year		Computer Science		*	*	*	*	*	*	*	*	*	*	*	*
		Medical Terminology		*	*	*	*	*	*	*	*	*	*	*	*

First Year		Democracy & Human right		*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Organic Chemistry I		*	*	*	*	*	*	*	*	*	*	*	*	*	*
First Year		Medical Physics		*	*	*	*	*	*	*	*	*	*	*	*	*	*
First Year		Pharmaceutical Calculations		*	*	*	*	*	*	*	*	*	*	*	*	*	*
First Year		Histology		*	*	*	*	*	*	*	*	*	*	*	*	*	*
First Year		Human Anatomy		*	*	*	*	*	*	*	*	*	*	*	*	*	*
First Year		Computer Science		*	*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Medical Microbiology I		*	*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Physiology I		*	*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Physical Pharmacy I		*	*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Organic Chemistry II		*	*	*	*	*	*	*	*	*	*	*	*	*	*

Second Year		Baath Party Crimes		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Computer Science		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Physiology II		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Pharmacognosy I		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Medical Microbiology II		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Physical Pharmacy II		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Organic Chemistry III		*	*	*	*	*	*	*	*	*	*	*	*	*
Second Year		Computer Science		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Biochemistry I		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Pharmaceutical Technology I		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Pathophysiology		*	*	*	*	*	*	*	*	*	*	*	*	*

Third Year		Inorganic Pharmaceutical Chemistry		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Pharmacognosy II		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Biochemistry II		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Pharmaceutical Technology II		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Organic Pharmaceutical Chemistry I		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Pharmacognosy III		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Pharmacology I		*	*	*	*	*	*	*	*	*	*	*	*	*
Third Year		Medical Ethics		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Organic Pharmaceutical Chemistry II		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Pharmacology II		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Clinical Pharmacy I		*	*	*	*	*	*	*	*	*	*	*	*	*

Fourth Year		Biopharmaceutics		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Public Health		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Organic Pharmaceutical Chemistry III		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Industrial Pharmacy I		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		General Toxicology		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Clinical Pharmacy II		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Pharmacology III		*	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year		Communication skills		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Industrial Pharmacy II		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Clinical Chemistry		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Applied Therapeutics I		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Clinical Toxicology		*	*	*	*	*	*	*	*	*	*	*	*	*

Fifth Year		Organic Pharmaceutical Chemistry IV		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Hospital Training		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Advanced Pharmaceutical Analysis		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Therapeutic Drug Monitoring		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Pharmacoeconomy		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Applied Therapeutics II		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Dosage Form Design		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Clinical Laboratory Training		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Pharmaceutical Biotechnology		*	*	*	*	*	*	*	*	*	*	*	*	*
Fifth Year		Undergraduate Project		*	*	*	*	*	*	*	*	*	*	*	*	*

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluati**

Course Description Form

Course Name:
Analytical Chemistry
Course Code:
Semester / Year: First semester, first stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Full attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hours for theory 2 hours for practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Aseel Salah, Assistant lecturer Zainab Nur-Elden Aziz Email: dr.aseel.salah21@gmail.com zainabnureldeen79@gmail.com
Course Objectives
This course description provides a necessary summary of the most important characteristics of the course and the learning results expected

from the student to achieve, demonstrating whether he has achieved

the maximum benefit from the available learning opportunities. It must be l

inked to the program description.

Teaching and Learning Strategies

1. Lectures
2. Conducting experiments
3. Reading textbooks

Conducting scientific discussions

Course Structure (theoretical and practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Review of elementary concept important to analytical chemistry:strong and weak electrolytes, importance weight and concentration		Lecture	Quiz
2.	2	Review of elementary concept important to analytical chemistry: strong and weak electrolytes, importance weight and concentration		Lecture	Quiz
3.	2	The evaluation to gravimetric data, definition of terms.		Lecture	Quiz
4.	2	An introduction to gravimetric analysis statistical analysis of data,rejection of data, precipitation methods		Lecture	Quiz
5.	2	An introduction to gravimetric analysis statistical analysis of data,rejection of data, precipitation methods		Lecture	Quiz
		Mid-term exam			
6.	2	The scope of application of gravimetric analysis, inorganic and organicprecipitating agents		Lecture	Quiz

7.	2	The scope of application of gravimetricanalysis, inorganic and organic precipitating agents	Lecture	Quiz
8.	2	An introduction to volumetric methods of analysis, volumetric calculations acid-base equilibria an calculations	Lecture	Quiz
9.	2	An introduction to volumetric methodsof analysis, volumetric calculations acid-base equilibria and PH calculations	Lecture	Quiz
10.	2	Theory of neutralization titrations of complex systems	Lecture	Quiz
11.	2	Theory of neutralization titrations of complex systems	Lecture	Quiz
12.	2	Calculation of PH in complex system	Lecture	Quiz
13.	2	Calculation of PH in complex system	Lecture	Quiz

week	hours	Learning outcome	Subject name	Learning method	Evaluation
1	2	Laboratory safety rules		lab	quiz
2	2	Glassware laboratory		lab	=
3	2	Prepare solutions from solids and liquids,		lab	=
4	2	Volumetric analysis (Titration)		=	4
5	2	Titration of hydrochloric acid with sodium carbonate solution		=	5
6	2	Titration of hydrochloric acid with sodium hydroxide solution		=	6
7		Mid Examination			
8	2	Titration of potassium permanganate solution with oxalateacide		=	=
9	2	Titration of potassium permanganate solution with ferrous sulfate		=	=
10	2	Determination of chloride by the Mohr method		=	=
11	2	Determination of a water hardness		2	=
12		Examination			
13	2	Preparation & Standardization of of 0.1 N HCL solution		=	=
14	2	Preparation & Standardization of of 0.1 N NaOH		=	=
15		Final			

Course Evaluation

1. Conducting mid-term exam
2. Conducting final exam

Learning and Teaching Resources

Required textbooks (curricular books any)	Fundamentals of Analytical chemistry by skoog and West 8th.ed.(2008). Modern Pharmaceutical Drug Analysis, by L. Zechmeister And L. Von Cholnoky, ISBN (13: 978-81-224-2718-9 Douglas A. Skoog, West, Holler and Crouch, Fundamentals of Analytical Chemistry, 9th edition, page 14 - 47, 2014 Vogel, Arthur, Vogel's Textbook of Quantitative Chemical Analysis, 6 edition.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
Computer Fundamentals (1)
Course Code:
Semester / Year:
First semester, First stage, 2023-2024
Description Preparation Date:
7–Mar–2024
Available Attendance Forms:
Weekly
Number of Credit Hours (Total) / Number of Units (Total)
2 hour theoretical - 2 hour Laboratory
Course administrator's name (mention all, if more than one name)
Name: Jannat Tariq Email:
Course Objectives

Course Objectives	**1. Understanding Basic Concepts:** • **Define key computer terminology.** • **Explain the fundamental components of a computer system.** **2. Operating System Proficiency:** • **Familiarize students with various operating systems.** • **Teach basic navigation and file management skills.** **3. Introduction to Hardware:**

	• **Identify and describe essential hardware components.** • **Understand the role of CPU, memory, and storage devices.** **4. Software Awareness:** • **Introduce different types of software (system, application, utility).** • **Highlight the importance of software in computer functionality.**
Teaching and Learning Strategies	
Strategy	Teaching Strategies: 1. Lectures and Demonstrations: • Present theoretical concepts through lectures. • Demonstrate practical applications of computer fundamental 2. Hands-on Exercises: • Provide students with hands-on activities using computers. • Encourage practice to reinforce theoretical knowledge. 3. Case Studies: • Present real-world examples to illustrate concepts. • Analyze how computer fundamentals are applied in various scenarios. 4. Interactive Learning: • Foster class discussions and Q&A sessions. • Encourage collaborative problem-solving among students. Learning Strategies:

	1. Active Participation: • Engage actively in class discussions and activities. • Take initiative in hands-on exercises and experiments. 2. Self-Study: • Read additional resources to deepen understanding. • Explore online tutorials and documentation. 3. Peer Collaboration: • Work with classmates on projects and assignments. • Share knowledge and collaborate on problem-solving. 4. Practical Application: • Apply theoretical knowledge to real-world situations. • Undertake projects that require the use of comput fundamentals.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	ICT, internet services, Mobile Technology, Office productivity tool	Information and Communicatio Technology	Theoretical	Short quizzes Term exam Final exam
2	2	Knowledge	Introduction about computer	Theoretical	Short quizzes

		and practical application	/Hardware	and practica	Term exam Final exam
3	2	Knowledge and practical application	Software/computer structure/ Floppy magnetic disks	Theoretical and practica	Short quizzes Term exam Final exam
4	2	Knowledge and practical application	Introduction to E-learning Goog Classroom Platform Google driv	Theoretical and practica	Short quizzes Term exam Final exam
5	2	Knowledge and practical application	Operating Systems	Theoretical and practica	Short quizzes Term exam Final exam
6	2	Knowledge and practical application	Online conferencing	Theoretical and practica	Short quizzes Term exam Final exam
7	2	Knowledge and practical application	Introduction about Windows / A look at Windows 10/Stating Windows 10/Working with a windows Program	Theoretical and practica	Short quizzes Term exam Final exam
8	2	Term exam			
9	2	Knowledge and practical application	Working with files and folders/ Using My computer	Theoretical and practica	Short quizzes Term exam Final exam
10	2	Knowledge and practical	Working with Taskbar and Desktop	Theoretical and practica	Short quizzes Term exam

		application			Final exam
11	2	Knowledge and practical application	Using Windows Accessories	Theoretical and practica	Short quizzes Term exam Final exam
12	2	Knowledge and practical application	A look at Control Panel	Theoretical and practica	Short quizzes Term exam Final exam
13	2	Knowledge and practical application	Widows Explorer	Theoretical and practica	Short quizzes Term exam Final exam
14	2	Knowledge and practical application	Libraries	Theoretical and practica	Short quizzes Term exam Final exam
15	2	Final exam			

Lab. Experiment		
Week	**Hours**	**Unit or subject name**
1	2	Introduction about computer / Hardware and Software/computer structure/`Floppy magnetic disks.
2	2	Operating systems/CD-ROM
3	2	Create Files &Folders High level programming language /Consta

		and variable/Library Function /Arithmetic expression/Type of Monitor /Number of systems
4	2	Installing Software and Upgrades, Security Software.
5	2	Introduction about MS-DOS Operating systems/DOS drive /Key-Board
6	2	DOS commands /Internal Commands/External Commands
7	2	Introduction about Windows /A look at Windows 7/Stating Windows 7/Working with a windows Program
8	2	Term exam
9	2	Working with files and folders/ Using My computer
10	2	Working with Taskbar and Desktop
11	2	Using Windows Accessories
12	2	A look at Control Panel
13	2	Widows Explorer
14	2	Libraries
15	2	Final exam

Course Evaluation	
A course evaluation of computer fundamentals typically involves assessing the effectiveness of the course in teaching foundational concepts of computing, such as hardware, software, operating systems, networks, and basic programming. It may include feedback on course materials, instructor effectiveness, assignments, exams, and overall satisfaction with the learning experience.	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	E-learning concepts and techniques, Mousa Afaneh, Vince Basile, Justin Bennett, Pamela Berman, Michael Bond
Recommended books and references (scientific journals, reports...)	Computer application in management, Dr. S. Aithal
Electronic References, Websites	

Course Description Form

Course Name:
Computer Fundamentals (1)
Course Code:
Semester / Year:
Second semester, First stage, 2023/2024
Description Preparation Date:
7−Mar−2024
Available Attendance Forms:
Weekly
Number of Credit Hours (Total) / Number of Units (Total)
30hrsTheory - 60hrs Laboratory
Course administrator's name (mention all, if more than one name)
Name: Jannat Tariq Email:
Course Objectives

Course Objectives	**1. Understanding Basic Concepts:** • **Define key computer terminology.** • **Explain the fundamental components of a computer system.** **2. Operating System Proficiency:** • **Familiarize students with various operating systems.**

	• **Teach basic navigation and file management skills.** **3. Introduction to Hardware:** • **Identify and describe essential hardware components.** • **Understand the role of CPU, memory, and storage devices.** **4. Software Awareness:** • **Introduce different types of software (system, application, utility).** • **Highlight the importance of software in computer functionality.**
Teaching and Learning Strategies	
Strategy	Teaching Strategies: 1. Lectures and Demonstrations: • Present theoretical concepts through lectures. • Demonstrate practical applications of computer fundamentals. 2. Hands-on Exercises: • Provide students with hands-on activities using computers. • Encourage practice to reinforce theoretical knowledge. 3. Case Studies: • Present real-world examples to illustrate concepts. • Analyze how computer fundamentals are applied in various scenarios. 4. Interactive Learning: • Foster class discussions and Q&A sessions. • Encourage collaborative problem-solving among students. Learning Strategies: 1. Active Participation: • Engage actively in class discussions and activities. • Take initiative in hands-on exercises and experiments. 2. Self-Study: • Read additional resources to deepen understanding. • Explore online tutorials and documentation. 3. Peer Collaboration: • Work with classmates on projects and assignments. • Share knowledge and collaborate on problem-solving. 4. Practical Application: • Apply theoretical knowledge to real-world situations.

	• Undertake projects that require the use of computer fundamentals.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Knowledge and practical application	Introduction about Microsoft Word2016 A look at Microsoft Word /Editing Document	Theoretical and practica	Short quizzes Term exam Final exam
2	1	Knowledge and practical application	Formatting Text/	Theoretical and practica	Short quizzes Term exam Final exam
3	1	Knowledge and practical application	Formatting paragraphs	Theoretical and practica	Short quizzes Term exam Final exam
3	1	Knowledge and practical application	Proofing documents	Theoretical and practica	Short quizzes Term exam Final exam
17	1	Knowledge and practical application	Adding Tables	Theoretical and practica	Short quizzes Term exam Final exam
18	1	Knowledge and practical application	Inserting Graphic Elements	Theoretical and practica	Short quizzes Term exam Final exam
19	1	Knowledge	Controlling page Appearance	Theoretical	Short quizzes

		and practical application		and practica	Term exam Final exam
29	1	Knowledge and practical application	Introduction about Excels /A Lo at Microsoft Excel	Theoretical and practica	Short quizzes Term exam Final exam
21	1	Knowledge and practical application	Modifying A Worksheet /performing Calculations	Theoretical and practica	Short quizzes Term exam Final exam
22	1	Knowledge and practical application	Formatting a worksheet/ Developing a work book	Theoretical and practica	Short quizzes Term exam Final exam
23	1	Knowledge and practical application	Printing Workbook Contents/Customizing Layout	Theoretical and practica	Short quizzes Term exam Final exam
24	1	Knowledge and practical application	Introduction about Microsoft Access/ A look at Microsoft Acc	Theoretical and practica	Short quizzes Term exam Final exam
25	1	Knowledge and practical application	Creating Data tables /properties the fields	Theoretical and practica	Short quizzes Term exam Final exam
26	1	Knowledge and practical application	Querying the database/Designi Forms/Producing reports	Theoretical and practica	Short quizzes Term exam Final exam

27	1	Knowledge and practical application	Introduction about Microsoft Power point/starting power point2016	Theoretical and practica	Short quizzes Term exam Final exam
28	1	Knowledge and practical application	Formatting text/Using graphics and Text	Theoretical and practica	Short quizzes Term exam Final exam
28	1	Knowledge and practical application	Manipulating the slides/Using Multimedia Elements	Theoretical and practica	Short quizzes Term exam Final exam
30	1	Knowledge and practical application	Powerpoint Management	Theoretical and practica	Short quizzes Term exam Final exam

Lab. Experiment		
Week	**Hours**	**Unit or subject name**
13	2	Introduction about Microsoft Word2016 A look at Microsoft Word /Editing Document
14	2	Formatting Text/
15	2	Formatting paragraphs
16	2	Proofing documents
17	2	Adding Tables
18	2	Inserting Graphic Elements

19	2	Controlling page Appearance
29	2	Introduction about Excels /A Look at Microsoft Excel
21	2	Modifying A Worksheet /performing Calculations
22	2	Formatting a worksheet/ Developing a work book
23	2	Printing Workbook Contents/Customizing Layout
24	2	Introduction about Microsoft Access/ A look at Microsoft Access
25	2	Creating Data tables /properties of the fields
26	2	Querying the database/Designing Forms/Producing reports
27	2	Introduction about Microsoft Power point/starting power point2016
28	2	Formatting text/Using graphics and Text
28	2	Manipulating the slides/Using Multimedia Elements
30	2	Powerpoint Management

Course Evaluation

A course evaluation of Microsoft Office typically involves assessing the effectiveness of the course in teaching various applications within the Microsoft Office suite, such as Word, Excel, PowerPoint, Outlook, and possibly others. It may include feedback on the clarity of instruction, practical exercises, coverage of relevant features and functionalities, instructor expertise, and overall satisfaction with the learning experience. This evaluation helps gauge the course's success in equipping students with essential skills for using Microsoft Office applications effectively in various contexts, such as professional, academic, or personal use.

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	E-learning concepts and techniques, Mousa Afaneh, Vince Basile, Justin Bennett, Pamela Berman, Michael Bond
Recommended books and references (scientific journals, reports…)	Computer application in management, P. S. Aithal
Electronic References, Websites	

Course Description Form

Course Name: English Language
CourseCode :
Semester / Year: 1st Semester / first stage 2023-2024
Description Preparation Date: 5/3/2024
Available Attendance Forms: full attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hours weekly for 16 weeks
Course administrator's name)mention all, (if more than one name
:NameMustafa nadhar Shakir Email: mustafashareef8@gmail.com

Course Objectives	
By the end of the course, students will have a solid foundation of knowledge and understanding in ,English language structure ,vocabulary, listening, reading	The subject-specific skills developed through the course "New Headway Plus - Pre-intermediate Level" include: Language Proficiency: Students will develop the ability to use English

speaking, writing, cultural awareness, and study skills. These competencies will enable them to communicate effectively in English and continue .their language learning journey	effectively and accurately in various contexts. They will acquire subject-specific skills in listening, speaking, reading, and writing, enabling them to communicate fluently and appropriately. Grammar and Syntax: Students will gain proficiency in using grammatical structures and syntax of the English language. They will develop subject-specific skills in understanding and applying grammar rules to construct grammatically correct sentences and express their ideas clearly. Vocabulary Expansion: Students will expand their vocabulary repertoire and develop subject-specific skills in using a wide range of words, phrases, and idiomatic expressions. They will acquire the ability to choose appropriate vocabulary to convey meaning accurately and enhance their communication. Listening Comprehension: Students will enhance their subject-specific skills in listening comprehension. They will develop the ability to understand spoken English in different accents, contexts, and speeds. They will learn to extract key information, understand main ideas, and infer meaning from oral texts.

	Reading Comprehension: Students will improve their subject-specific skills in reading comprehension. They will learn strategies to understand different types of texts, including articles, reports, and narratives. They will develop skills in identifying main ideas, supporting details, and making inferences from written materials. Speaking and Conversation: Students will develop subject-specific skills in speaking and conversation. They will learn how to express themselves confidently and fluently in various situations, engage in discussions, share opinions, and present information effectively. Writing Proficiency: Students will develop subject-specific skills in writing. They will learn to write clear, coherent, and well-structured paragraphs and essays. They will acquire skills in organizing ideas, using appropriate vocabulary and grammar, and expressing their thoughts effectively in writing. Pronunciation and Intonation: Students will improve their subject-specific skills in pronunciation and intonation. They will

	learn to produce accurate sounds, stress patterns, and intonation to enhance their spoken communication and be better understood by others. These subject-specific skills are crucial for students to develop proficiency in the English language and effectively communicate in academic, professional, and social contexts. •
Teaching and Learning Strategies	
:Task-based Learning :our-skills approach :Communicative approach	This approach emphasizes real-world communication and problem-solving. Students are presented with tasks that require them to use the language functionally, such as planning a trip, ordering food, or discussing a .news article The course focuses on developing all ,four language skills: listening speaking, reading, and writing. Each unit includes activities and exercises

	that target each skill individually and in .integrated way
:Scaffolding	The emphasis is on using language fo communication, not just memorizing grammar rules. Students are encouraged to use the language they are learning to intera .with others and express themselves
:Variety of activities	This technique provides students with support as they learn new concepts and skills. Activities are designed to move from controlled practice to freer production, allowing students to .gradually develop their abilities The course book uses a variety of activities to cater to different learning styles :and preferences. These include ● Dialogues and conversations ● Reading passages and comprehension exercises ● Grammar exercises and activities ● Vocabulary building exercises

:Technology integration	● Role-playing activities ● Games and simulations ● Projects The New Headway Plus course offers online resources and activities that can be used to supplement classroom learning. These resources can provide students with additional practice and opportunities f self-study.
:Learner autonomy	The course encourages students to become independent learners by providing them with strategies for self-monitoring, evaluation, and learning. This includes activities such setting goals, reflecting on their progress, and identifying areas for improvement.
:Differentiation .8	The course can be adapted to meet the needs of diverse learners. Teachers can use different teaching methods, materials,

	and assessments to cater to different .learning styles and levels

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Grammar: I, am, you, this Stop and check (quiz)	How to introduce yourself in English? Unite 1: Greetings	Using reference materials interactive. white board	quiz
2	2	Grammar: what, where, hov Stop and check (quiz)	Unite 2: your world	=	=
3	2	Grammar: Present simple	Unite 3: It is my life	=	=
4	2	Grammar: Negatives, Questions, short answers	Unite 4: Personal information:	=	=
5	2	Grammar: Positives, short answers, adjectives, have and has	Unite 5: Family and Friends	=	=
6	2	Grammar: Present simple	unite 6: It is my life	=	=
7	2	Grammar: time, date,	Unite 7: Everyday life	=	=

		Present simple and simple past			
8	2	Grammar: Objective pronouns, this/that, questions and answers	Unite 8: Places I/we lik	=	=
9	2	Grammar: time, date, Present simple and simple Stop and check (quiz)	Unite 9: Everyday life	=	=
10	2	Stop and check (quiz) homework Subject: numbers, singular and plural	Unite 10: Skills Work (new vocabulary), Reading and listening:	=	=
11	2	Reading and speaking: Stop and check (quiz), homework Subject: Social expressions, jobs	Unite 12: Skills work (new vocabulary)	=	=
12	2	Reading and writing: Stop and check (quiz), homework Subject: Talking about family, talking about friends	Unite 13: Skills work (new vocabulary)	=	=
13	2	listing and speaking:	Unite 14: Skills work (new vocabulary)	=	=
14	2	Stop and check. (quiz), and homework Subject: Talking about sport, talking about music	Unite 15: Stop and chec	=	=
15	2	homework Subject: countries: where are they	work (new vocabulary),	=	=

		from	Reading and listening:		

Course Evaluation

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

Learning and Teaching Resources

) Required textbookscurricular books(if any ,	Textbooks: New headway plus pre-intermediate, Oxford, latest addition
Main references (sources)	
Recommended books and references (…scientific journals, reports)	
Electronic References, Websites	Resources related to academic writing and English grammar from the Internet or other recen books

Course Description Form

Course Name: Histology
Course Code:
Semester / Year: second semester, first stage
Description Preparation Date:11\3\2024
Available Attendance Forms: official full attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hours theoretical 2 hours practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Ali Mohammed, Assistant lecturer Huda Ghassan Email: Ph_alimohammed@gau.edu.iq huda.ghassan@gau.edu.iq
Course Objectives
Course Objectives **1-Be able to distinguish the normal tissues** **2- knowledge of the basic principles of Human histology**

Teaching and Learning Strategies
1- Slide presentation
2 - reports
3 – making of conferences, workshops and engaging in scientific debate

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Integumentary System	Integumentary System	The use of scientific references and use the board	Monthly written examinations andoral examinations
2,3	4	Circulatory System	Circulatory System	The use of scientific references and use the board	Monthly written examinations andoral examinations
4,5	4	Lymphatic System	Lymphatic System	The use of scientific references and use the board	Monthly written examinations andoral examinations
6	4	Respiratory System	Respiratory System	The use of scientific references and use the board	Monthly written examinations andoral examinations
7	4	Digestive System (Oral cavity)	Digestive System(Oral cavity)	The use of scientific references and use the board	Monthly written examinations andoral examinations
8	4	Digestive System	Digestive System (digestive tract)	The use of scientific	Monthly written examinations and
9	4	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder)	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder)	The use of scientific references anduse the board	Monthly written examinations andoral examinations

10,11	4	Urinary System	Urinary System	The use of scientific references and use the board	Monthly written examinations andoral examinations
12,13	4	Reproductive System(female reproductive system) Reproductive System(male reproductive system)	Reproductive System(female reproductive system) Reproductive System(male reproductive system	The use of scientific references anduse the board	Monthly written examinations andoral examinations
14	4	Accessoryglands	Accessory glands	The use of scientific references and use the board	Monthly written examinations andoral examinations
15		Final exam	Final exam	The use of scientific references and use the board	Monthly written examinations andoral examinations

Course description (practical)		
weeks	**Laboratory sessions & *Clinical requirements***	hours
1	Introduction to Histology slide preparation	2
2	Digestive System	2
3 4	Circulatory System	2
5 6	Urinary system	2
7 8	Respiratory System	2
9 10	Endocrine system	2
11 12	CNS system	2

1. Course evaluation weekly examination reports Homeworks

2. Learning and Teaching Resources	
Required textbooks (curricular books, if a	**Atlas of-Histology with function and clinical correlations (Dongmei Cui),2011**
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:	
Human Anatomy	
Course Code:	
Semester / Year:	
2nd semester, first stage	
Description Preparation Date:	
11/3/2024	
Available Attendance Forms:	
Weekly	
Number of Credit Hours (Total) / Number of Units (Total)	
3 hrs theoretical 2 hrs practical	
Course administrator's name (mention all, if more than one name)	
Name: Dr Atheer Khdyair Hamed Email: atheerspace@yahoo.com	
Course Objectives	
Course Objectives	Study the position of different organs in the thoracic and abdominal cavity including: digestive system, circulatory system, lymphatic system, respiratory system, urinary system, reproductive system, endocrine system, nervous system and skin
Teaching and Learning Strategies	

Strategy	A-Cognitive objectives B-The skills objectives of the course

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
12 weeks	15 hours	Knowledge and application	Circulatory system Lymphoid tissue Nervous system Respiratory system Digestive system Endocrine system Male reproductive system Female reproductive system Urinary system	in person education lectures using data show (PowerPoint) software	Short quizzes Term exam Final exam
1	3h.s theory , 2 h.s practical	Introduction	1. General introductio n to human anatomy	PPT slides, smart board,	Reports Quizzes Home works
2	3h.s theory , 2 h.s practical	Anatomy of CVS	2. Cardiovasc ular system: Anatomical position of the heart, arterial circulation, venous circulation	PPT slides, smart board	Reports Quizzes Home works
3	3h.s theory , 2 h.s practical	Anatomy of muscles, its types and position and function	3. musculosk eletal system	PPT slides,	Reports Quizzes

4	3h.s theory , 2 h.s practical	Anatomy of main bones in the body	musculoskeletal system part 2	PPT slides, smart board	Reports Quizzes Home works
5	3h.s theory , 2 h.s practical	Anatomy of primary lymphoid organs	4. Lymphoid tissue: Location of the (thymus gland, spleen and lymph nodes)	PPTslides, smart board	Reports Quizzes Home works
6	3h.s theory , 2 h.s practical	Anatomy of secondary lymphoid organs	Lymphoid nodule (MALT) and Tonsils	PPT slides, smart board	Reports Quizzes Home works
7	3h.s theory , 2 h.s practical	Anatomy of central nervous system	5. Nervous system: Central & Peripheral nervous system by location	PPT slides, smart board	Reports Quizzes Home works
8	3h.s theory , 2 h.s practical	Anatomy of respiratory system	6. Respirator y system: Conducting portion (Nose, Nasopharynx, Trachea Bronchus and Bronchioles) Respiratory portion (Lung)	PPT slides, smart board	Reports Quizzes Home works
9	3h.s theory , 2 h.s practical	Anatomy of GIT an biliary system	7. Digestive system: Location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus and Stomach) Small intestine, Large intestine, Rectum and Anus.	PPT slides, smart board	Reports Quizzes Home works
10	3h.s theory , 2		mid exam	PPT slides,	Reports Quizzes

	h.s practical			smart board	Home works
11	3h.s theory , 2 h.s practical	Anatomy of salivary glands	8. Digestive system: Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver and Gall bladder)	PPT slides, smart board	Reports Quizzes Home works
12	3h.s theory , 2 h.s practical	Anatomy of endocrine system	9. Endocrine system: Location of the pituitary gland Location of the Adrenal, Thyroid, Parathyroid, islet of Langerhans and Pineal glands.	PPT slides, smart board	Reports Quizzes Home works
13	3h.s theory , 2 h.s practical	Anatomy of male and female reproductive system	10. Male reproductiv e system: Location of the testes Excretory genital ducts Excretory genital glands (Seminal vesicles, Prostate and Cowper's glands)	PPT slides, smart board	Reports Quizzes Home works
14	3h.s theory , 2 h.s practical	Anatomy of male and female reproductive system	11. Female reproductiv e system: Location of ovary, Oviduct, Uterus	PPT slides, smart board	Reports Quizzes Home works

			and Vagina		
16.	3h.s theory , 2 h.s practical	Anatomy of renal system	12. Urinary system: Location of the (kidney and nephrons) Location of the (Ureter, Bladder and Urethra)	PPT slides, smart board,	Reports Quizzes Home works

Course Evaluation

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Clinical Anatomy by Regions (Richard S. Snell 8th 2010).**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name: Human Biology (theoretical and practical)
Course Code:
Semester / Year: First stage, first semester
Description Preparation Date:11-3-2024
Available Attendance Forms: Official daily attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hours theoretical 2 hours practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Ali Mohammed, Assistant lecturer Huda Ghassan Email: Ph_alimohammed@gau.edu.iq huda.ghassan@gau.edu.iq
Course Objectives
Study and understand the biology of the human body and its essential structure. Educate the student all the scientific information regarding the types of cells and tissues presents in the human body and body systems.

Teaching and Learning Strategies
1. Power point presentation in theoretical part.. 2. Displaying slides for all the parts of the human body as it appears under the microscope on the smartboard and explains them. Using scientific references.

Course Structure (theoretical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	**Introduction to Human Biology:** General information, definitions, branches of Biology, levels of organization in the human body.		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
2	2	**Nutrition-Part I**Definitions, important food molecules		Slide show, smart board and scientific references	Monthly writtenexams, daily written exams, oral exams, quizzes
3	2	**Nutrition-Part II** Digestion.		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes

4	2	**Cell and cellbiology:** Cell structure, celltypes, cell jobs.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
5	2	**Cell and cellbiology:** cell division and production of reproductive cells,fertilization.	Slide show, smart board and scientificreferences	Monthly written exams, daily written exams, oral exams, quizzes
6	2	**Tissues-Part I** Epithelial tissues, Connective tissues.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
7	2	**Tissues-Part II** Muscular tissues, Nervous tissues.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
8	2	**Systems/** **Glandular System:** Types of glands and their structure.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
9	2	**Systems/** Hormones and hormonal system, adulthood and reproduction	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
10	2	**Systems/ Immune system:** The parts and Job of the immune system.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes

11	2	**Systems/ Digestive system:** The general structure of the system including its organs starting from the mouth to the anus, with their function.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
12	2	**Systems/ Digestive system: The general structure of the system including its organs starting from the mouth to the anus, with their function.**	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
13	2	**Systems/ Circulatory system:** The heart, circulatory system components, circulation.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
14	2	**Circulatory system:** The heart, circulatory system components, circulation.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
15	2	Review for the Final exam	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes

Course structure (practical)

Week	Hrs	Subject name	Teaching methods	Assessment methods
1	2	**Introduction to** **Introduction to biosafety and biosecurity** CBRN Risk Biosafety Risk Assessment Outbreaks Bioterrorism Risk: Biosafety Levels CBRN Risk:	Slide show, smart board and scientific references	weekly written and oral Exams. written exams, oral exams, quizzes
2	2	**Biological and biohazardous agents** Control of Substances Hazardous to Health Steps for Health and safety risk assessment	Slide show, smart board and scientific references	weekly written exams, daily written exams, oral exams, quizzes
3	2	**The Microscope** Introduction Types of microscope Parts of Compound Microscope (Light microscope) There are	Slide show, smart board and scientific references	weekly written exams, daily written exams, oral exams, quizzes
4	2	**Cell and cellbiology:** Cell structure, celltypes, cell jobs.	Slide show, smart board and scientific references	weekly written exams, daily written exams, oral exams, quizzes
5	2	**Tissues-Part I** Epithelial tissues, Connective tissues.	Slide show, smart board and examination under microscope	weekly written exams, daily written exams, oral exams, quizzes
6	2	**Tissues-Part II** Muscular tissues, Nervous tissues.	Slide show, smart board and examination under microscope	weekly written exams, daily written exams, oral exams, quizzes

7	2	**Systems/** **Glandular System:** Types of glands and their structure.	Slide show, smart board and scientific references	weekly written exams, daily written exams, oral exams, quizzes

Course Evaluation

Mid exam

Final exam

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Human Biology Douglas Wilkin, Ph.D Jean Brainard, Ph.D 2015
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

ourse Name: **Human Rights**
Course Code:
Semester / Year:First semester, first stage, 2023-2024
Description Preparation Date:11-3-2024
Available Attendance Forms: Formal attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hr
Course administrator's name (mention all, if more than one name)
Name: Dr. Zainab Al tememi
Course Objectives
1. **protect human beings from any kind of discrimination and injustice all over the world.** 2. **develop individual self-respect.** 3. **to value human dignity.**
Teaching and Learning Strategies
1- Power point presentation 2- Seminar and group discussion
Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	The outcomes of human rights	The concept of human rights	theoretical	Discussion
2.	2	The history of human rights incivilizations	The ancient civilizations like Babylonian and Greek human rights concepts	Theoretical	Discussion
3.	2	The history of Plato and Socrates	The outcomes of their theories	Theoretical	discussion
4.	2	The philosophyof divine religions	The outcomes of human rights calls in religions	Theoretical	discussion
5.	2	The different types of humans rights	The outcomes of different types of human rights	Theoretical	discussion
6.	2	Different types of freedom inhuman rights	The outcomes of freedom in human rights	Theoretical	discussion
7.	2	The rights and obligations of freedom	The outcomes of the rights of obligations of freedom	Theoretical	discussion
8.	2	Mid terms		Theoretical	Test
10.	2	The economic and sociological rights	The economic and sociological rights outcomes of	Theoretical	discussion
11.	2	The Arabic chartof human rights	The treaty of Arabic chart of human rights	Theoretical	Discussion
12.	2	The international declaration of human rights	The treaty of international declaration of human rights	Theoretical	Discussion
13.	2	The regional chart of human rights	The treaty of the regional chart of human rights	Theoretical	Discussion
14.	2	The national chart of human rights	The treaty of the national chart of human rights	Theoretical	Discussion

15.		Final			

Course Evaluation
Mid exam Final exam

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name: Mathematics & Biostatistics/
Course Code:
Semester / Year:First semester, first stage, 2023-2024
Description Preparation Date:11-3-2024
Available Attendance Forms: Formal attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hrs
Course administrator's name (mention all, if more than one name)
Name: Dr. Salma Email:
Course Objectives
• Comprehend differences in data allocation through visual representation. • Realize and offer references of types of data occurring in clinical studies and public healt • Understand and infer results from Analysis of Variance; this technique compares mea between two autonomous populations.
Teaching and Learning Strategies

1- Oral lectures
2- Group communication
3- Exa

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical. field	Mathematics: General concepts,Coordinate, and graph in plane	Power Points. Whit board	Quizzes , homework andoral examination
2	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical. field	Inequality, absolute value or magnitude	Power Points. Whit board	Quizzes , homework andoral examination
3	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical. field	Function and their graphs , Displacement function	Power Points. Whit board	Quizzes , homework andoral examination
4	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical. field	Slope and equationfor lines	Power Points. Whit board	Quizzes , homework andoral examination
5	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical. field	Practice exercises	Power Points. Whit board	Quizzes , homework andoral examination

6	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical. field	Biostatics: General concepts of statistics	Power Points. Whit board	Quizzes , homework andoral examination
7	3	Students gained information in the fieldof Mathematics. Biostatistics and the application in medical field	Limits, theorem of limits	Power Points. Whit board	Quizzes , homework andoral examination
8	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Statistical methodsand theory	Power Points. Whit board	Quizzes , homework andoral examination
9	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Continuity,continuity conditions	Power Points. Whit board	Quizzes , homework andoral examination
10	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Practice exercises	Power Point. Whit board	Quizzes , homework andoral examination
11	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Probability concepts	Power Point. Whit board	Quizzes , homework andoral examination
12	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	The concepts of central tendency	Power Points. Whit board	Quizzes , homework andoral examination

13	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Practice exercises	Power Points. Whit board	Quizzes , homework andoral examination
14	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Deviations and variation, application of staticin medical field	Power Points. Whit board	Quizzes , homework andoral examination
15	3	Students gained information in the field of Mathematics Biostatistics and the application in medical. field	Review questionand exercises	Power Points. Whit board	Quizzes , homework andoral examination

Course Evaluation

Mid exam

Final exam

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
Medical physics
Course Code:
Semester / Year: second semester, first stage
Description Preparation Date:
11/3/2024
Available Attendance Forms: official full attendance
Number of Credit Hours (Total) / Number of Units (Total)
Course administrator's name (mention all, if more than one name)
Name: MSC. Thalfaa Rasheed Ajeel Email:Thalfaa.rasheed@gau.edu.irq
Course Objectives
Course Objectives The course aims to study the applications of physical laws on the human body, such as electrical, mechanical, kinetic, and pressure, in addition to sound, hearing, light, and vision, in addition to studying the medical devices used in the diagnosis and treatment of some pathological conditions and the effect of the work of these devices on the human body .
Teaching and Learning Strategies
1 The student can understand the basic components of bones

-2 The student can distinguish between the forces acting on and in the body
3- The student can explain the mechanism of heat transfer and its transformations.
-4 The student can understand the meaning of volume, pressure, temperature and methods of measuring them

B - Skills objectives for the course:
B1 - The student can solve problems related to the Unik coefficient
B2 - The student can solve problems related to work, force and power
B3 - The student can solve problems related to pressure inside the human body
C- Emotional and value-based goals:
C-1 The student can harness his concepts of medical physics in practical applications
A2- The student can understand heat and cold in the human body and their effects . C-3 The student can harness the concepts of force, pressure, and temperature for the human body and benefit from them in our lives today.
D - General and transferable skills (other skills related to employability and personal development).
D A - verbal communication
D B - The ability to express ideas clearly and confidently in speech
D C - Teamwork

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2	2 2	Terms: Medical Physics, physical medicine, Physical therapy, Health Physics, Radiological Physics, clinical physics. Modeling, Accuracy,	Terminology	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam

		Precision, False Positive, False Negative.			
3 4	2 2	Static forces :(type of levers with medical examples). Dynamic forces (Centrifuge)	Force on &in body:	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam
5 6	2 2	Physics of the skeleton: Bones:(Function of bones, Composition of bone, bone remodeling, compact and trabecular bone) Stress-strain curve :(compressive and tensile stress, young modulus). Bone joints :(Synovial fluid, coefficient of a joint).	Physics of the skeleton:	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam
7 8	2 2	Physical basis of heat and temperature, Temperature scales, Converting Temperatures, Temperature in Dentistry, Thermal expansion, (Linear, Area, Volume Thermal Expansion), Thermometry, Heat therapy, Thermography, Cold in medicine and cryosurgery. Thermal conductivity.	Heat and cold in medicine	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam
9 10	2 2	: First law of thermodynamic. Energy change in the body (Met, Basal metabolic rate (BMR). Work and power. Efficiency heat losses from the body. Anaerobic phase and aerobic phase. Hypothalamus (body's thermostat).Heat lost by (radiation, convection, evaporation of sweat and respiration).	Energy, work and power of the body	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam
11 12	2 2	Definition, absolute pressure, gauge pressure, negative pressure, unit of pressure. Measurement of pressure in the body (Manometer).Pressure inside the skull. Eye pressure. Pressure in the skeleton. Pressure in the urinary bladder.Boyle's law: (pressure while diving).HOT (hyperbaric oxygen therapy).	Pressure:	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam

13 14	2 2	Electrical potential of nerves (resting potential, action potential in myelinated and unmyelinated nerves) Electromyogram (EMG). Electrical potential in the heart (electrocardiogram ECG). Electroencephalogram (EEG)	Electricity within the body:	in person education lectures using data show (PowerPoint) software.	• Short quizzes • Term exam • Final exam
15 16	2 2	: Properties of sound. Stethoscope (including heart sound).mechanism of hearing	Sound in medicine	in person education lectures using data show (PowerPoint) software	• Short quizzes • Term exam • Final exam

Course structure (practical)

Course description (practical)		
weeks	**Laboratory sessions & *Clinical requirements***	hours
1	Guidelines of Medical Physics Lab and Rules must be obeyed by the students	2
2	Graphing Techniques	2
3 4	Ohm's law: - verify ohm's law - to find the value of different values of resistance 2 4	2
5 6	Semiconductors (junction diode): To determine the characteristics of the semiconductors Comparison between omic and non-omic resistance	2
7 8	The focal length of convex lens: -Rough value of focal length of different convex lenses, -A graphical method of measuring of focal length, Comparison between these methods and the given value.	2
9 10	Hook's law: -To verify Hook's law and determine the force constant of the spring. -To determine the work done by stretching the spring	2
11 12	Focal length of concave mirror: -Locating the radius of curvature -Dete	2
13 14	Laser applications: -To measure the width of a single slit by using a laser -To measure the wavelength of laser by using a certain single slit	2
15 16	Boyle's law: -To verify Boyle's law -To measure the pressure of the atmosphere	2

1. Course evaluation Mid exam Final exam reports	
2. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Medical physics / John Cameron and** **James G. (Skofronick**
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name: **medical terminology**
Course Code:
Semester / Year:First semester, first stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Full term
Number of Credit Hours (Total) / Number of Units (Total)
1 hour for theory only
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Ahmed yaseen Email: Ahmed.yaseen.alsharea@gau.edu.iq
Course Objectives
Course Objectives Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors Enabling the student to develop laboratory knowledge and skills through laboratory work using many technologies and chemical devices Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities. Harmonization between theoretical trends and practical reality in the pharmaceutical sciences Enabling students to get acquainted with the tools of scientific research and to work on using them in the academic and practical fields.

Keeping abreast of modern scientific developments in pharmacology and working to employ them.
-Preparing and qualifying students to pursue higher studies through developing their intellectual, scientific and research skills

Teaching and Learning Strategies

1-Emphasis on the necessity of learning and experience in the field of teaching.
2-Discuss teamwork.
3-Writing self-reports.
4-Use the strategy of cooperation and assistance during the education process.
5. Field visits to the relevant ministries and educational institutions.
6-Holding seminars, courses and workshops for students that encourage spiritual values.
7-Forming a discussion group during the lecture.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	1	Study simple wordroots and commonsuffixes	Principles of medical terminology	smart board Slideshow	Reports An oral or written exam
2.	1	Study of word prefixes related topharmaceutical. sciences	Principles of medical terminology	=	=
3.	1	Study basic anatomy andabnormal conditions	Principles of medical terminology	=	=
4	1	=	=	=	=
5.	1	Study of the genitals and urinary tract	Body System Terminology	=	=
6.	1	The study of the digestive system	Body System Terminology	=	=
7	1	Study of the heart and blood vessels	Body System Terminology	=	=
8	1	Study growth, development andthe body	Body System Terminology	=	=
9		Midterm exam			
10	1	Study of gynecology, pregnancy andchildbirth	Body System Terminology	=	=
11.	1	Eye study and respiratory systemstudy	Body System Terminology	=	=

12	1	The study of thenervous system	Body System Terminology	=	=
13	1	=	=	=	=
14	1	Study of blood andits diseases and study of the immune system	Body System Terminology	=	=
15	2	Study qualificationsand statistics of symptoms, diagnosis, treatmentand communication	Body System Terminology	=	=
16		Final exam			

Course Evaluation

1 Quizzes
2 - Oral examination
3 3 -Mid-term exam
4- The final exam

Learning and Teaching Resources

Required textbooks (curricular books any)	**Textbooks: A short course in medical terminology, 1st l Lippincott Williams and Wilkins;2008**
Main references (sources)	**Textbooks: A short course in medical terminology, 1st l Lippincott Williams and Wilkins;2008** **PC Networking for System Programmers**
Recommended books and references (scientific journals, reports…)	**Resources related to new medical terminology from the Internet or other recent books**

Course Description Form

Course Name: organic Chemistry I
Course Code:
Semester / Year: Second semester ,first stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Full attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hours for theory 2 hours for practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Aseel Salah, Assistant lecturer Zainab Nur-Elden Aziz Email: dr.aseel.salah21@gmail.com zainabnureldeen79@gmail.com
Course Objectives
This course description provides a necessary summary of the most importa characteristics of the course and the learning results expected from the student achieve, demonstrating whether he has achieved the maximum benefit from t available learning opportunities. It must be linked to the program description.

Teaching and Learning Strategies
4. Lectures 5. Conducting experiments 6. Reading textbooks 4-Conducting scientific discussions

Course Structure (theoretical and practical)					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1.	**3**	**Introduction**		**Lecture**	**Quiz**
2.	**3**	**Methane**		**Lecture**	**Quiz**
3.	**3**	**Alkanes**		**Lecture**	**Quiz**
4.	**3**	**Cyclo alkanes**		**Lecture**	**Quiz**
5.	**3**	**Alkenes I**		**Lecture**	**Quiz**
6.	**3**	**Alkenes II**		**Lecture**	**Quiz**
7.	**3**	**Alkynes**		**Lecture**	**Quiz**
8.	**3**	**Dienes**		**Lecture**	**Quiz**
9.	**3**	**Stereochemistry I**		**Lecture**	**Quiz**
10.	**3**	**Stereochemistry II**		**Lecture**	**Quiz**
11.	**3**	**Alcohols**		**Lecture**	**Quiz**
12.	**3**	**Alcohols I**		**Lecture**	**Quiz**
13.	**3**	**Ethers**		**Lecture**	**Quiz**
14.	**3**	**Alkyl halides I**		**Lecture**	**Quiz**

15.	3	**Alkyl halides II**	**Lecture**	**Quiz**

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Determination of melting point (Known sample).		**lab**	**Quiz**
2.	2	Determination of melting point (quiz and unknown)		**lab**	**Quiz**
3.	2	Determination of boiling point (known sample)		**lab**	**Quiz**
4.	2	Determination of boiling point (quiz and unknown)		**lab**	**Quiz**
5.	2	Elemental analysis (explanation of basic concepts)		**lab**	**Quiz**
6.	2	Elemental analysis (known quantity and quality sample)		**lab**	**Quiz**
7.	2	Solution and filtration techniques (explanation of basic concepts)		**lab**	**Quiz**
8.	2	Re-crystallization (known sample)		**lab**	**Quiz**
9.	2	Re-crystallization (quiz and unknown sample)		**lab**	**Quiz**
10.	2	Extraction technique (known sample)		**lab**	**Quiz**
11.	2	Extraction technique (quiz and unknown)		**lab**	**Quiz**
12.	2	Distillation techniques (known samples)		**lab**	**Quiz**
13.	2	Distillation techniques (quiz and unknown)		**lab**	**Quiz**
14.	2	Sublimation technique (known sample)		**lab**	**Quiz**
15.	2	Sublimation technique (quiz and unknown)		**lab**	**Quiz**

Course Evaluation	
3. Conducting mid-term exam 4. Conducting final exam	
Learning and Teaching Resources	
Required textbooks (curricular books, if any	R.T. Morrison, R.N. Boyd and S.K. Bhattacharjee "Organic Chemistry" 7th Edition Pearson Education Inc. (2011).
Main references (sources)	John McMurry "Organic Chemistry" 9th Edition Cengage Learning, USA (**2016**).
Recommended books and references (scientific journals, reports...)	John McMurry "Organic Chemistry with Biological Applications" 3rd Edition Cengage Learning, USA (**2015**).
Electronic References, Websites	Google searching for organic chemistry

Course Description Form

Course Name: Pharmaceutical calculation
Course Code:
Semester / Year:2nd semester, first stage, 2023-2024
Description Preparation Date:11-3-2024
Available Attendance Forms: Full attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hr theory 2 hr practical
Course administrator's name (mention all, if more than one name)
Name: Faten Qais Ibraheem Email: fatenalatraqchi@gau.edu.iq
Course Objectives
The use of calculations in pharmacy is varied and broad-based. As pharmaceutical calculations are concerned in several areas, including commercial and research, especially in industry, academies and government institutions. Applications of pharmaceutical calculations include: the physical and chemical properties of the drug, the biological effectiveness and

the speed of absorption of the drug, the spread of the drug in the body, the metabolic changes of the drug and its excretion, statistical information for research and clinical studies of drugs, the development and formulation of drug products, the calculation of drug doses, Pharmacoeconomics and other fields

Teaching and Learning Strategies

1. Use a smart board
2. Doing practical experiments
3. Writing scientific reports related to practical experiments.

Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2 theoretical 2 practical	Differentiate between the terms isosmotic, isotonic, hypertonic and hypotonic.	Isotonic solutions	lecture	Discussion and practical work evaluation and assessments
2.	2 theoretical 2 practical	Apply physical chemical principles in the calculation of isotonic solutions.	Isotonic solutions	lecture	Discussion and practical work evaluation and assessments
3.	2theoretical 2 practical	Perform the	Isotonic	lecture	Discussion and

		calculations required to prepare isotonic component prescription.	solutions		practical work evaluation and assessments
4.	2theoretical 2 practical	Calculate the milliequivalent weight from and atomic or formula weight.	Electrolyte solutions: Milliequivalent, millimoles, and milliosmoles	lecture	Discussion and practical work evaluation and assessments
5.	2theoretical 2 practical	Convert between milligrams and milliequivalents	Electrolyte solutions: Milliequivalents, millimoles, and milliosmoles	lecture	Discussion and practical work evaluation and assessments
6.	2theoretical 2 practical	Calculate problems involving milliequivalents	Electrolyte solutions: Milliequivalent, millimoles, and milliosmoles	lecture	Discussion and practical work evaluation and assessments
7.	2theoretical 2 practical	Calculate problems involving millimoles and milliosmoles.	Electrolyte solutions: Milliequivalent, millimoles, and milliosmoles	lecture	Discussion and practical work evaluation and assessments

8.	2theoretical 2 practical	Perform calculations for altering product strength by dilution.	Altering product strength, use of stock solutions, and problem solving by allegation	lecture	Discussion and practical work evaluation and assessments
9.	2theoretical 2 practical	Perform calculations for altering product strength by concentration	Altering product strength, use of stock solutions, and problem solving by allegation	lecture	Discussion and practical work evaluation and assessments
10.	2theoretical 2 practical	Perform calculations for preparation and use of stock solutions.	Altering product strength, use of stock solutions, and problem solving by allegation	lecture	Discussion and practical work evaluation and assessments
11.	2theoretical 2 practical	Apply allegation medial and allegation alternate in problem- solving.	Altering product strength, use of stock solutions, and problem solving by allegation	lecture	Discussion and practical work evaluation and assessments

12.	2theoretical 2 practical	Perform calculations for adults and paediatric intravenous infusions.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	lecture	Discussion and practical work evaluation and assessments
13.	2theoretical 2 practical	Perform calculations for intravenous additives.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	lecture	Discussion and practical work evaluation and assessments
14.	2theoretical 2 practical	Perform rate of flow calculations for intravenous fluids.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	lecture	Discussion and practical work evaluation and assessments
15.	2theoretical 2 practical	Utilize correctly rate of flow tables and nomograms.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	lecture	Discussion and practical work evaluation and assessments
Course Evaluation					
Mid exam Final exam					

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E. Aulton (Author) Churchill Livingstone- Elsevier
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Ansel Pharmaceutical Calculations 13th 2020; and 15th 2017 Edition; Howard C. Ansel; Wolters Kluwer
Electronic References, Websites	

Course Description Form

Course Name: Principles of pharmacy practice
Course Code:
Semester / Year: first semester, first stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Full attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hours theory
Course administrator's name (mention all, if more than one name)
Name: Assistant lecturer Faten Qais Ibraheem Email: fatenalatraqchi@gau.edu.iq
Course Objectives
This course description provides a necessary summary of the most important characteristics of the course the learning results expected from the student to achieve, demonstrating whether he has achieved maximum benefit from the available learning opportunities. It must be linked to the program description.
Teaching and Learning Strategies
1. Use of smart board 2. Conducting scientific experiments Writing scientific reports
Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Principles of Pharmacy calculations	Principles of Pharmacy calculations	Smart boardand problem solving in class	Discussions and practical outcome evaluation
Second	2	Translate Prescription and medication orders	Prescription and medication orders	Smart boardand problem solving inclas	Discussions and practical outcome evaluation
Third	2	Translate prescripti and medication orde	Prescription and medication orders	Smart boardand problem solving in class	Discussions and practical outcome evaluation
Fourth	2	Learning IS unitsand their calculation	International system of units	Smart boardand problem solving inclas	Discussions and practical outcome evaluation
Fifth	2	Learning IS unitsand their calculation	International system of units	Smart boardand problem solving inclas	Discussions and practical outcome evaluation
Sixth	2	Common system of measurements	Common system of measurements and intersystem conversion	Smart boardand problem solving in class	Discussions and practical outcome evaluation
Seventh	2	Interconversion between IS and metric systems	Common system of measurements and intersystem conversion	Smart boardand problem solving in class	Discussions and practical outcome evaluation
Eighth	2	How to calculate proper doses	Dose calculations general consideratio	Smart boardand problem solving inclas	Discussions and practical outcome evaluation

Ninth	2	How to calculate proper doses	Dose calculations general consideratio	Smart board ad problem solving inclas	Discussions and practical outcome evaluation
Tenth	2	How to calculate proper doses based on patient weight	Dose calculations patient parameters	Smart board and problem solving in clas	Discussions and practical outco evaluation
Eleven	2	How to calculate proper doses	Dose calculations	Smart board and problem	Discussions and practical
Twelve	2	How to calculate proper doses based on patient BSA	Dose calculations patient parameters	Smart boardand problem solving in class	Discussions and practicaloutcor evaluation
Thirteer	2	How to calculate density and specifi gravity	Density and specific gravity and specific volume	Smart boardand problem solving in class	Discussions and practicaloutcor evaluation
Fourtee	2	How to calculate density and specifi gravity	Density and specific gravity and specificvolume	Smart boardand problem solving inclas	Discussions and practicaloutcor evaluation
Fifteen	2	Reducing and enlarging formula	Reducing and enlarging formula	Smart boardand problem solving in class	Discussions and practicaloutcor evaluation
Sixteen	2	Reducing and enlarging formula	Reducing and enlarging formula	Smart boardand problem solving in class	Discussions and practicaloutcor evaluation

1. Course Evaluation

Small group discussion
Mid exam
Final exam

2. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Pharmaceutical Calculation ,Howard C Ansel,13 th Edition2010 Wolters Kluwer Lippincott Williams &Wilkins
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name:
Computer Science second stage1
Course Code:
Computer Science
Semester / Year:
First semester, second stage, 2023-2024
Description Preparation Date:
7−Mar−2024
Available Attendance Forms:
Weekly
Number of Credit Hours (Total) / Number of Units (Total)
30hrsTheory - 60hrs Laboratory
Course administrator's name (mention all, if more than one name)
Name: Jannat Tariq Email:
Course Objectives
1. *Understanding the Software:* **- Familiarize users with the interface and tools of PowerPoint.** **- Explain the purpose and potential uses of PowerPoint presentations.** **2. *Creating Effective Presentations:*** **- Teach users how to design visually appealing and engaging slides.** **- Emphasize the importance of clear and concise content in presentations.** **3. *Enhancing Communication Skills:*** **- Develop skills in presenting information effectively using PowerPoint.**

- **Encourage creativity and innovation in presentation design.**

4. *Utilizing Multimedia Elements:*

- **Introduce users to incorporating multimedia elements such as images, Videos, and audio clips into presentations.**
- **Teach how to use animations and transitions to enhance the presentation flow.**

Teaching and Learning Strategies

Teaching Strategies:

1. *Demonstrations and Tutorials:*
   - Provide step-by-step demonstrations of PowerPoint features and functionalities.
   - Offer tutorials to guide users through creating various types of presentations.

2. *Hands-on Practice:*
   - Allow users to practice creating presentations independently.
   - Provide exercises and assignments to reinforce learning.

3. *Feedback and Evaluation:*
   - Offer constructive feedback on presentations created by users.
   - Evaluate presentations based on criteria such as content clarity, visual design, and deliver skills.

4. *Case Studies and Examples:*
   - Present case studies and examples of effective PowerPoint presentations.
   - Analyze successful presentations to identify best practices and techniques.

Learning Strategies:

1. *Active Engagement:*
   - Encourage active participation in learning activities and discussions.
   - Prompt users to explore different features of PowerPoint through experimentation.

2. *Self-paced Learning:*
   - Provide resources such as tutorials, guides, and online courses for self-paced learning.
   - Encourage users to explore advanced features of PowerPoint based on their interests and needs.

3. *Collaborative Learning:*
   - Facilitate group projects where users collaborate to create presentations.

- Foster peer learning through sharing tips, feedback, and experiences with PowerPoint.

4. *Continuous Improvement:*
- Encourage users to seek feedback and continuously refine their presentation skills.
- Provide opportunities for users to highlight their presentations and receive construct criticism.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Knowledge and practical application	Introduction about Microsoft Power point/starting power poi 2016	Theoretical and practica	Short quizzes Term exam Final exam
2	1	Knowledge and practical application	Powerpoint essentials	Theoretical and practica	Short quizzes Term exam Final exam
3	1	Knowledge and practical application	Presentation basics	Theoretical and practica	Short quizzes Term exam Final exam
4	1	Knowledge and practical application	Working with text	Theoretical and practica	Short quizzes Term exam Final exam
5	1	Knowledge and practical application	Designing a presentation	Theoretical and practica	Short quizzes Term exam Final exam
6	1	Knowledge and practical application	Adding tables to slides	Theoretical and practica	Short quizzes Term exam Final exam
7	1	Knowledge and practical application	Using charts in a presentation	Theoretical and practica	Short quizzes Term exam Final exam
8	1	Knowledge and practical application	Creating SmartArt graphics	Theoretical and practica	Short quizzes Term exam Final exam
9	1	Knowledge and practical	Homework Assignments	Theoretical and practica	Short quizzes Term exam

		application			Final exam
10	1	Knowledge and practical application	Adding graphics to a presentat	Theoretical and practica	Short quizzes Term exam Final exam
11	1	Knowledge and practical application	Using animation and multimedi	Theoretical and practica	Short quizzes Term exam Final exam
12	1	Knowledge and practical application	Securing and sharing a presentation	Theoretical and practica	Short quizzes Term exam Final exam
13	1	Knowledge and practical application	Delivering a presentation	Theoretical and practica	Short quizzes Term exam Final exam
14	1	Knowledge and practical application	Students final project presentat	Theoretical and practica	Short quizzes Term exam Final exam
15	1	Final exam			

Lab. Experiment		
Week	**Hours**	**Unit or subject name**
1	2	Introduction about Microsoft Power point/starting power point 2016
2	2	Powerpoint essentials
3	2	Presentation basics
4	2	Working with text
5	2	Designing a presentation
6	2	Adding tables to slides
7	2	Using charts in a presentation
8	2	Creating SmartArt graphics
9	2	Homework Assignments
10	2	Adding graphics to a presentation
11	2	Using animation and multimedia
12	2	Securing and sharing a presentation

13	2	Delivering a presentation
14	2	Students final project presentation
15	2	Final exam

3. Course Evaluation

A course evaluation of PowerPoint typically involves assessing the effectiveness of the course in teaching the principles and practical skills related to creating engaging presentations using Microsoft PowerPoint software. It may include feedback on topics such as understanding the interface, designing visually appealing slides, incorporating multimedia elements effectively, delivering presentations confidently, and utilizing advanced features like animations and transitions. The evaluation helps determine the course's success in equipping students with the knowledge and skills to create impactful presentations for various purposes, such as business meetings, academic presentations, or training sessions.

4. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Student Guide 40568A, Microsoft PowerPoint associate 2019 Microsoft Official Academic Course, MICROSOFT POWERPOINT 2016 ISBN: 978-1-11-927303-5
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name: Medical Microbiology I
Course Code:
Semester / Year: 1st semester, Second stage
Description Preparation Date: 11/3/2024
Available Attendance Forms:
Weekly
Number of Credit Hours (Total) / Number of Units (Total)
3hrs theory, 2 hrs practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Atheer Khdair Hamed, Assist. lecturer: Amal Ghazi Mutter Email: atheerspace@yahoo.com amal.ghazi.al-mimmar@gau.edu.iq
Course Objectives
provide a basic understanding of the morphology, anatomy, physiology and genetics of bacteria in addition, the methods of handling, visualizing, characterizing
Teaching and Learning Strategies
C- Cognitive objectives D- The skills objectives of the course
Course Structure (theoretical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15 weeks	45 hours	Knowledge and application	Introduction. Anatomy of bacteria Bacterial physiology Genetics Recombinant DNA biotechnology Sporulation and germination Sterilization Chemotherapy and sensitivity test Staphylococci species Streptococcus species Aerobic Spore-forming bacteria Bacillu species Clostridium perfringens; Clostridium tetani; Clostridium botulinum Corynebacterium diphtheriae, Propionibacterium acnes, Listeria, Mycobacterium tuberculosis; M. lepra Enterobacteriaceae Vibrio, Pseudomonas, Helicoba pylori, Neisseria spp., Brucella,Proteus	in person education lectures using data show (PowerPoint) software	Short quizzes Term exam Final exam
1	3	Students acqui information in t field of microbiologyto reach the requi level	Importance of microbiology, History of microbiology an Anatomyof bacteria: Surface appendage, Capsule, Cell wall of G.+ve & G –ve bacteria, Cytoplasmic membrane and Morphology of Bacteria, Staining and	The use scientific references use theboard	Monthly writ examinations oral examinatio

			Classification		
2	3	Students acqui information in t field of microbiologyto reach the requi level	Bacterial physiology: Physical and chemical growth determinate, growth and growth curves,bacteria reproduction	The use of scientific references and use theboa	Monthly writ examinations oral examinatio
3	3	Students acqui information in t field of microbiologyto reach the requi level	Genetics: Definition, genetic element, mutation(spontaneous, gene transfer, transformation, conjugation, and gene transduction).	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
4	3	Students acqui information in t field of microbiologyto reach the requi level	Recombinant DNAbiotechnology a Sporulation and germination	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
5	3	Students acqui information in t field of microbiologyto reach the requi level	. Sterilization (chemical +physical Methods).	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
6	3	Students acqui information in t field of microbiologyto reach the requi level	Chemotherapy. andAntibiotic	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
7	3	Students acqui information in t field of microbiologyto	Staphylococci species: Streptococc pyogenes; Streptococcus pneumo	The use of scientific references and use theboard	Monthly writ examinations oral examinatio

		reach the requi level			
8	3	Students acquir information in t field of microbiologyto reach the requi level	Aerobic Spore-forming bacteria Bacillus species (B. anthracis, B. subtilis, B.ceseus).	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
9		Students acquir information in t field of microbiologyto reach the requi level	Clostridium perfringens;Clostridiur tetani; Clostridium botuliun		
10	3	Students acquir information in t field of microbiologyto reach the requi level	Corynebacterium diphtheria and Propionibacterium acnes,Listeria	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
11	3	Students acquir information in t field of microbiologyto reach the requi level	Mycobacterium tuberculosis; M. leprae	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
12	3	Students acquir information in t field of microbiologyto reach the requi level	Chlamyadiae; Actinomycetes	The use of scientific references and use theboard	Monthly writ examinations oral examinatio
13	3	Students acquir information in t field of microbiologyto	Enterobacteriaceae: E.coli; Klebsie spp.; Cilrobacte , Sertalia, Hafmia, Enterobacter	The use of scientific references and use theboard	Monthly writ examinations oral examinatio

		reach the requi level			
14	3	Students acquir information in t field of microbiology to reach the requi level he	Shigella spp; Salmonella spp;		
15	3	Students acquire information in the field of microbiology to reach the requiredlevel	Proteus spp , Pseudomonasspp and Vibrio Cholerae; Brucella spp; Haemophilusspp; Campylobacter spp		
Course structure (practical)					

Medical Microbiology,		
	Microscopic techniques. Bright-field light microscope.	2
	Examination of stained microorganisms; Smear preparation and	2
	simple staining; Gram staining.	
	The hanging drop slide and bacterial motility; Acid-fast staining	2
	procedure.	
	Bacterial spores and endospores staining; Microbiological culture media and sterilization; Methods of inoculation and isolation of pure culture.	2
	Action of Antibiotics; Enzymes assays for some specific	2
	microbial enzymes.	
	Assays for specific metabolic activities; Acid and gas production	2
	from: Carbohydrate fermentation; Triple sugar iron agar test; IMVIC tests.	
	Systemic bacteriology: *Staphylococci spp* .	2
	Streptococci species.	2
	Salmonella species.	2
	Shigella species.	2
	Pseudomonas species.	2
	Proteus species.	2
	Escherichia coli	2
	Klebsiella species.	2
	Candida albicans .	2
	Introduction to physical pharmacy	2

Course Evaluation

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	1.Medical Microbiology, seventeenth edition E .Jawetz, J.L. Melnick, E.A. Adel 1987
Main references (sources)	2. Principles of microbiology by Roland M.

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name: Medical Microbiology II
Course Code:
Semester / Year: 2nd semester, Second stage
Description Preparation Date: 11/3/2024
Available Attendance Forms: Official full attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hr theory 2 hr practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Atheer Khdair Hamed, Assistant lecturer Amal Ghazi Mutter Email: atheerspace@yahoo.com amal.ghazi.al-mimmar@gau.edu.iq
Course Objectives
provide a basic understanding of the morphology, anatomy, physiology and genetics of bacteria in addition, the methods of handling, visualizing, characterizing
Teaching and Learning Strategies
E- Cognitive objectives F- The skills objectives of the course

Course Structure (Theoretical)					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
15 weeks	45 hours	Knowledge and application	**Parasitology** : Introduction. Intestinal and tissue protozo Helminthes Cestodes Trematodes Nematods **Virology**: Introduction RNA viruses DNA viruses **Immunology:** introduction, innate and adaptive immuni complement, MHC molecule and autoimmune diseases, hypersensitivity, tumor immunity, immunodeficienc immunological methods	in person education lectures using data show (PowerPoint) software	Short quizzes Term exam Final exam

1	3	Students acquire information in the field of parasites to the required level	Introduction tomedical parasitology	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
2	3	Students acquire information in the field of parasites to the required level	Introduction to protozoa, *Entamoeba histolytica*, *E. coli*, *Entamoeba gingival is*, *Endolimax nana*, *Entamoeba. Butchlii*	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
3	3	Students acquire information in the field of parasites to therequired level	A. The flagellates of digestive tract and genital organs:*Giardia lamblia*, *Trichomonas vaginalis*, *Trichomonas tenax*, *Trichomonas hominis.* Ciliates: *Balantidium coli*	Slideshow and smart board	Monthly written exams, daily written exams,oral exams, quizzes
4	3	Students acquire information in the field of parasites to the required level	B. Blood & tissue flagellates: *Leishmania* spp. and *Trypanosome*spp.	Slide show and smart board	Monthly written exams, daily written exams,oral exams, quizzes

5	3	Students acquire information in the field of parasites to the	Sporozoa: A. Malaria parasite *Plasmodium spp.*	Slide show and smart board	Monthly written exams, daily written exams,oral exams, quizzes
6	3	Students acquire information in the field of parasites to the required level	B. Toxoplasmosis *Toxoplasma gondii*	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
7	3	Students acquire information in the field of parasites to the required level	Helminths: Introduction and Classification, Trematoda: Blood flukes or Schistosomes	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
8	3	Students acquire information in the field of parasites to the required level	Cestoda: A. Adult tapewormInfections: *Taenia saginata, Taenia solium, Hymenolepis nana*	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
9	3	Students acquire information in the field of parasites to the required level	B. larval tapeworminfection: *Echinococcus granulosus, multilocularis*	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
10	3	Students acquire information in the field of parasites to the required level	Nematodes: Introduction to Nematodes: *Ascaris lumbricoides,*	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes

11	3	Students acquire information in the field of parasites to the required level	*Ancylostomaduodenale*, *Enterobius vermicularis*	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
12	3	Students acquire information in	General LaboratoryDiagnostic Techniques and Samples, Review	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams,
Course description (virology)					
1	1	Introduction to Virology		Slide show and smart board	exam
2	1	Replication of viruses		Slide show and smart board	exam
3	1	Chemotherapy		Slide show and smart board	oral exams, quizzes
4	1	Herpesviruses		Slide show and smart board	=

5	1	Hepatitis viruses	Slide show and smart board	=
7	1	Retro viruses & AIDS, SARS, Ebola Lassa viruses	Slide show and smart board	=
8	1	Alteration genetictransformation of virus	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes
9	1	Oncogenic viruses	Slide show and smart board	Monthly writtenexams, daily written exams, oral exams, quizzes

Course structure (Immunology)

1	2	General information inimmunology	General informationin immunology	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
2	2	Innate and adaptive immunity	Innate and adaptive immunity	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
3	2	Study of antigen characteristic	Antigen characteristic	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes

4	2	Study of B andT cells	B and T	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
5	2	Study of the complement andits role in in the immunity	Complement	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
6	2	Study of autoimmune	Autoimmune disease 1	Slide show and smart board	Monthly written exams,
7	2	Study of autoimmune diseases	Autoimmunedisease 2	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
8	2	Study of antibody characteristic	Antibody characteristic	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
9	2	understand the mechanisms of immunity againstcancer diseases	Oncogenicimmunity	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
10	2	Study of Hypersensitivity reactions	Hypersensitivitytype-1	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
11	2	Study of Hypersensitivity reactions	Hypersensitivitytype-2	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes

12	2	Study the Immune deficiencydiseases	Immune deficiency diseases	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
13	2	Complete the study of Immunedeficiency diseases	Complete Immune deficiency diseases	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes

Course Evaluation

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	**1.Medical Microbiology, seventeenth edition E .Jawetz, J.L.Melnick, E.A. Adel 1987**
Main references (sources)	**2. Principles of microbiology by Roland M.**
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name: Organic chemistry III
Course Code:
Semester / Year: Second semester, second stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Official daily attendance
Number of Credit Hours (Total) / Number of Units (Total)
2 hrs theoretical 2 hrs practical
Course administrator's name (mention all, if more than one name)
Name: dr. Hiba Mushtaq PhD. Lecturer Aseel salah , Assistant lecturer Meqat Talib Email: Hiba.mushtaq.ahmed@gau.edu.iq mekathamada@yahoo.com,
Course Objectives
Course Objective **A. Cognitive goals**

- **Statement of knowledge and basic principles in chemistry**
- **Conducting practical experiments of theoretical concepts**
- **Preparation of explanatory aids**
- **Preparing brief reports**

B. The skill goals of the program

- **Students will demonstrate knowledge in fields of organic chemistry**
- **Solve samples of questions related to the course**

Teaching and Learning Strategies

Strategy

- **reading different correlated books**
- **–use Scientific references**

participate in workshops

Course Structure (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Aldol Condensation - Synthesis of Dibenzalacetone		Practical	quiz
2	2	Aldol Condensation - Synthesis of Dibenzalacetone (quiz and unknown)		Practical	quiz

3	2	Synthesis of p-Nitro acetanilide from Acetanilide (Electrophilic Aromatic Substitution	Practical	quiz
4	2	(quiz- unknown Synthesis of p-Nitro acetanilide from Acetanilide (Electrophilic Aromatic Substitution)	Practical	quiz
5	2	Synthesis of p- nitroaniline from aniline based on protection/deprotection of amine group	Practical	quiz
6	2	(Synthesis of p-nitroaniline from aniline based on protection/deprotection of amine group quiz- unknown)	Practical	quiz
7	2	Cross aldol condensation Preparation of 1-(4- methoxyphenyl)-3-phenylprop-2-en-1-one	Practical	quiz
8	2	Cross aldol condensation Preparation of 1-(4- methoxyphenyl)-3-phenylprop-2-en-1-one (Quiz- unknown)	Practical	

9	2	Cannizzaro reaction	Practical	quiz
10	2	Cannizzaro reaction (Quiz- unknown)	Practical	quiz
11	2	Mechanochemical synthesis of racemic 1,1'-bi-2-naphthol and 2,3-diphenylquinoxaline	Practical	quiz
12	2	Mechanochemical synthesis of racemic 1,1'-bi-2-naphthol and 2,3-diphenylquinoxaline (quiz- unknown)	Practical	quiz

11. Course Evaluation

- Homework
- Quiz
- Oral exam

Report

12. Learning and Teaching Resources

Required textbooks (curricu books, if any)	Morrison RT and Boyd RN, Organic Chemistry, 6th edd. 2008 2-Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000

Main references (sources)	Beale, J.M. and Block, J.H.(2011)" Wilson and Gisvold textbook of organic medicinal and pharmaceutical chemistry ;11th Edd.; WoltersKluwer. 2)Furniss B.S., Hannaford, A.J. and Tatchell,A.R.; Vogel text book of practical organic chemistry, edd, 3) Vogel practical organic chemistry
Recommended books and references (scientific journals, reports…)	
Electronic Referenc Websites	

Course structure (practical)

Week	Hours	Unit name	Learning method	Evaluation method
1	2	Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products. I (Theory)	Lectures	quiz
2	2	Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products. II	Lectures	quiz
3	2	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. I	Lectures	quiz

4	2	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. II	Lectures	quiz
5	2	Source of pyrrole, furan and thiophen. I	Lectures	quiz
6	2	Source of pyrrole, furan and thiophen. II	Lectures	quiz
10	2	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine. I	Lectures	quiz
11	2	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine. II	Lectures	quiz
12	2	Saturated five-membered heterocyclic compounds I	Lectures	quiz
13	2	Saturated five-membered heterocyclic compounds II	Lectures	quiz
14	2	Heterocyclic offive & six member rings with two & three heteroatoms.	Lectures	quiz
15		Final examination		

Course Description Form

Course Name: Organic chemistry II
Course Code:
Semester / Year: First semester, second stage, 2023-2024
Description Preparation Date:11-3-2024
Available Attendance Forms: Official full attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hrs for theoretical 2 hrs for practical
Course administrator's name (mention all, if more than one name)
Name: dr. Hiba Mushtaq Ahmed Assistant lecturer Meqat Talib Hiba.mushtaq.ahmed@gau.edu.iq mekathamada@yahoo.com
Course Objectives
Course Objective Be able to explain the reactivity of substituted aromatic compounds. Be looking to the relationship between aromatic structure and reactivity. To enable students to understand the chemistry of carbon, and the classification,

properties and reactions of organic compounds.

It includes understanding the basic structure and properties of Benzene, Aromatic compounds, Carboxylic acids, Functional derivatives of carboxylic acids, Aldehydes, Ketones, Phenols and Amines, in addition to the principles and application of these compounds

Teaching and Learning Strategies

Strategy

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

Course Structure(theoretical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Synthesis	Benzene and aromatic compounds	Lectures	quiz
2	3	reaction	Electrophilic Aromatic Substitution	Lectures	quiz
3	3	Synthesis and reaction	Phenols I	Lectures	quiz
4	3	Synthesis and reaction	Phenols II	Lectures	quiz
5	3	Synthesis and reaction	Carboxylic acids I	Lectures	quiz
6	3	Synthesis and reaction	Carboxylic acids II	Lectures	quiz

7	4.5	Synthesis and reaction	Functional Derivatives of Carboxylic acids I	Lectures	quiz
8	1.5		Mid Examination		
9	3	Synthesis and reaction	Functional Derivatives of Carboxylic acids II	Lectures	quiz
10	3	Synthesis and reaction	Aldehydes I	Lectures	quiz
11	3	Synthesis and reaction	Aldehydes II	Lectures	quiz
12	3	Synthesis and reaction	Ketones	Lectures	quiz
13	3	Synthesis and reaction	Amines I	Lectures	quiz
14	3	Synthesis and reaction	Amines II	Lectures	quiz
15	3		Final Examination		

Course structure (practical)

week	hours	Learning outcome	Unit name	Learning method	Evaluation
1	2	Synthesis	Solubility class	Practical	quiz
2	2	reaction	Solubility class (quiz and unknown)	Practical	quiz
3	2	Synthesis and reaction	Identification of Alcohols	Practical	quiz
4	2	Synthesis andreaction	Identification of Alcohols (quiz-unknown)	Practical	quiz
5	2	Synthesis and reaction	Identification of Phenols	Practical	quiz
6	2	Synthesis andreaction	Identification of Phenols (quiz-unknown)	Practical	quiz

7	2	Synthesis andreaction	Identification of Aldehydes and ketones	Practical	quiz
8	1.5		Mid Examination		
9	2	Synthesis andreaction	Identification of Aldehydes and ketones (quiz-unknown)	Practical	quiz
10	2	Synthesis and reaction	Identification of Carboxylic acid	Practical	quiz
11	2	Synthesis andreaction	Identification ofCarboxylic acid (quiz- unknown)	Practical	quiz
12	2	Synthesis and reaction	Identification of Amines	Practical	quiz
13	2	Synthesis andreaction	Identification of Salt of carboxylic acid	Practical	quiz
14	2	Synthesis andreaction	Identification of Salt of carboxylicacid (quiz-unknown)	Practical	quiz
15	3		Final Examination		

Course Evaluation

- Homework
- Quiz
- Oral exam

Report

Learning and Teaching Resources

Required textbooks (curricular books, if a	Morrison RT and Boyd RN, Organic Chemistry, 6th edd. 2008

	2-Organic Chemistry by McCurry; 5th ed. Thomason learning; CA, USA; 2000
Main references (sources)	Beale, J.M. and Block, J.H. (2011)" Wilson and Gisvold textbook of organic medicinal and pharmaceutical chemistry ;11th Edd.; WoltersKluwer. 2)Furniss B.S., Hannaford, A.J. and Tatchell,A.R.; Vogel tex book of practical organic chemistry, 5th edd, 3) Vogel practical organic chemistry
Recommended books and references (scientific journals, reports…)	Journals of organic chemistry Theoretical and practical. practical organic chemistry
Electronic References, Websites	

Course Description Form

Course Name: Pharmacognosy I
Course Code:
Semester / Year: Second stage, Second semester
Description Preparation Date:11-3-2024
Available Attendance Forms: Official attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hr theoretical 2 hr practical
Course administrator's name (mention all, if more than one name)
Name: Assistant lecturer: Sabah Noori Hammadi Email: Hanan_bahjat@yahoo.com
Course Objectives
This course is intended to study the scope of Pharmacognosy, medicinal plant nomenclature, classification of natural products, phytochemistry which include extraction and isolation of active constituents from natural sources.
Teaching and Learning Strategies
Using the smart board for slide presentation in theoretical part Experimental work
Course Structure (Theoretical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	**General Introduction: The Scope of Pharmacognosy, definitions and basic principles. Drugs from natural sources, crud drugs, official and non-official drugs.**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
2	3	**Classification of natural products. Plant nomenclature and taxonomy.**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
3	3	**Production of crude drugs: Cultivation, collection, drying and storage. Deterioration of crude natural products.**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
4	3	**Pharmacological activities of natural products. Chemistry of natural drug products.**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
5	3	**Quality control: Evaluation of natural products; macroscopical evaluation; physical evaluation; chemical evaluation; biological evaluation; spectroscopical evaluation.**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
6	3	**Separation technique: introduction, mechanisms of separation and classification based on the type of technique.**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
7	3	**Paper chromatography, Thin layer chromatography**		Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams,

				quizzes
8	3	**Column chromatography**	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
9	3	**High performance liquid chromatography**	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
10	3	**Gas chromatography**	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
11	3	**GEL filtration chromatography**	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
12	3	**Ion exchange chromatography**	Slide show, smart board and scientific references	Monthly written written exams, oral exams, quizzes
13	3	**Affinity chromatography**		
14	3	Plant tissue culture	=	=
15	3	Review before final exam		

Course structure (practical)

week	hours	Description
1	2	Micro measurement and magnification
2	2	Microscopical identification of crude drugs and cell contents
3	2	Extraction and separation techniques.
4	2	=
5	2	Chromatography.
6	2	=

7	2	Paper chromatography (circular and horizontal paper chromatography).
8	2	=
9	2	Introduction to thin-layer chromatography
10	2	TLC on microscope slides
11	2	Partition chromatography for the separation of volatile oils.
12	2	=
13	2	Effect of activity of adsorbents on Rf values
14	2	=

Course Evaluation

Mid exam

Final exam

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Trease and Evans Pharmacognosy; 15th ed., 2000. 2. Practical manual / second stage Pharmacognosy
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name: Physical pharmacy II
Course Code:
Semester / Year: Second semester, second stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Official full daily attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hrs theoretical 2 hrs practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Ahmed yaseen Email: Ahmed.yaseen.alsharea@gau.edu.iq
Course Objectives
Course Objective **Cognitive goals** 1. Enabling students to gain and understand the degree of solubility and the 2. phenomenon of distribution. 2: Enable students to obtain and understand the degree of reactions and the effect of temperature and other factors on the speed of the reaction. 3: Enable students to achieve the degree of viscosity of fluids and rheology.

4: Enable students to achieve and understand the properties of surfaces and colloidal solutions.
Teaching and Learning Strategies
Strategy Using the smart board to display the theoretical part and conduct practical experiments

Course Structure (theoretical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Solubility	Definitions	Use white board and experiments	Discussion and present results
2	3	Solubility	Theories	Use white board and do experiments	Discussion andpresent lab results
3	3	Solubility	Distribution	Use white board and do experiments	Discussion andpresent lab results
4	3	Kinetics	First, second thirds	Use white board and do experiments	Discussion andpresent lab results
5	3	Kinetics	Expiry date	Use white board and do experiments	Discussion andpresent lab results
6	3	Kinetics	Shelf life	Use white board and do experiments	Discussion andpresent lab

					results
7	3	Rheology	Property	Use white board and do experiments	Discussion and present lab results
8	3	Rheology	Law and equati	Use white board and do experiments	Discussion andpresent lab results
9	3	Rheology	Thixotropic the	Use white board and do experiments	Discussion and present lab results
10	3	Surface tensio	Theory	Use white board and do experiments	Discussion andpresent lab results
11	3	Mid exam		Use white board and do experiments	Discussion andpresent lab results
12	3	Surface tensio	law	Use white board and do experiments	Discussion and present lab results
13	3	Surface tensio	Applications	Use white board and do experiments	Discussion and present lab results
14	3	Colloids	Application pharmacy	Use white board and do experiments	Discussion and present lab results
15	3	Colloids	Theory	Use white board and do experiments	Discussion and present lab results

Course description (practical)

week	hours	Unit name	Learning method	**Evaluation**
1	2	Solubility	Lab	**Quiz**
2	2	Solubilization by complexation.	=	=

3	2	Solubilization by surface active agents.	=	=
4	2	Solubilization by surface active agents	=	=
5	2	Determination of solubility product constant	=	=
6	2	determination of partition coefficient	=	=
7		Mid exam		
8	2	Kinetics	=	=
9	2	Kinetics	=	=
10	2	Kinetics	=	=
11	2	Kinetics	=	=
12	2	Measurement of surface tension	=	=
13	2	Viscosity	=	=
14	2	Viscosity	=	=
15	2	Viscosity	=	=
16		Final		

Course Evaluation

Mid exam

Final exam

Report

Attendance

Learning and Teaching Resources	
Required textbooks (curricular books if any)	Martin´s physical pharmacy and pharmaceutical sciences, Patrick J. Sinko . Wolters Kluwer. Lippincott Williams &Wilkins. Philadelphia. 2011. Lab manual for physical pharmacy adopted by the department
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name: Physical pharmacy I
Course Code:
Semester / Year:First semester, second stage
Description Preparation Date:11-3-2024
Available Attendance Forms: Official full daily attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hrs theoretical 2 hrs practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Ahmed yaseen Email: Ahmed.yaseen.alsharea@gau.edu.iq Assistant lecturer Faten Qais Ibraheem(practical) fatenalatraqchi@gau.edu.iq
Course Objectives
Course Objective **Cognitive goals** Enabling students to gain and understand the degree of solubility and the phenomenon of distribution.

2: Enable students to obtain and understand the degree of reactions and the effect of temperature and other factors on the speed of the reaction.

3: Enable students to achieve the degree of viscosity of fluids and rheology.

4: Enable students to achieve and understand the properties of surfaces and colloidal solutions.

Teaching and Learning Strategies

Strategy

Using the smart board to display the theoretical part and conduct practical experiments

Course Structure (theoretical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Stats of matter	Ionic forces	Use white board and do experiments	Discussion andpresent lab results
2	3	Stats of matter	Liquid and solidstate	Use white board and experiments	Discussion and present results
3	3	Stats of matter	Gaseous state	Use white board and do experiments	Discussion andpresent lab results
4	3	Thermodynamic	First low of thermodynamic	Use white board and experiments	Discussion and present results
5	3	Thermodynamic	Second low thermodynamic	Use white board and do experiments	Discussion andpresent lab results
6	3	Thermodynamic	Third low of	Use white	Discussion and

			thermodynamic	board and experiments	present results
7	3	Solution of non-electrolyt	Property	Use white board and do experiments	Discussion andpresent lab results
8	3	Solution of non-electrolyt	Law and equations	Use white board and do experiments	Discussion and present lab results
9	3	Solution ofelectrolyte	Property	Use white board and do experiments	Discussion andpresent lab results
10	3	Solution ofelectrolyte	Law and equations	Use white board and do experiments	Discussion andpresent lab results
11	3	Mid exam		Use white board and do experiments	Discussion and present lab results
12	3	Ionic equilibrium	Acid-base theory	Use white board and do experiments	Discussion and present lab results
13	3	Ionic equilibrium	Equations for differen cases	Use white board and do experiments	Discussion and present lab results
14	3	Buffer	Type and preparation	Use white board and do experiments	Discussion and present lab results
15	3	Buffer	Isotonic solution	Use white board and do experiments	Discussion andpresent lab results

Course description (practical)

week	hours	Unit name	Learning method	**Evaluation**
1	2	Introduction to physical pharmacy	Lab	**Quiz**
2	2	Expression of concentrations in pharmaceutical preparations.	=	=

3	2	Expression of concentrations in pharmaceutical preparations.	=	=
4	2	Expression of concentrations in pharmaceutical preparations.	=	=
5	2	Two component systems containing liquid phases.	=	=
6	2	Two component systems containing liquid phases.	=	=
7		Mid exam		
8	2	Two component systems containing liquid phases.	=	=
9	2	Three component systems.	=	=
10	2	Three component systems.	=	=
11	2	Tie linear for three component systems.	=	=
12	2	Tie linear for three component systems.	=	=
13	2	Tie linear for three component systems.	=	=
14	2	Buffer solutions	=	=
15	2	Buffer solutions	=	=
16		Final		

Course Evaluation

Mid exam

Final exam

Report

Attendance

Learning and Teaching Resources

Required textbooks (curricular boo if any)	Martin´s physical pharmacy and pharmaceutical sciences, Patrick J. Sinko . Wolters Kluwer. Lippincott Williams &Wilkins. Philadelphia. 2011. Lab manual for physical pharmacy adopted by the department
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

Course Name: *Physiology I*
Course Code:
Semester / Year: first semester, second stage, 2023-2-24
Description Preparation Date:11-3-2024
Available Attendance Forms: Official attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hrs Theoretical/ 2 hrs Practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Mohammed Mohsin Shallal Assist. lecturer: Amal Ghazi Muttar Email: Rxdtuja@gmail.com amal.ghazi.al-mimmar@gau.edu.iq
Course Objectives
The course aims to provide students with the principle about the function of cell and cell organelles, the microstructure and function of excitable tissues (nerve and muscle), the structure and function of cardiovascular, respiratory and renal systems. At the end of the cour students are expected to learn the functions and regulations of cell as a basic unit of life, the generation and transmission of nerve impulses, how neurons and

connected, the role of central, peripheral and autonomic nervous systems in the control of organ functions, the three different types of muscle tissues, how the muscle contracts, the heart as self–excitable organ and as a pump, the blood pressure (generation and control), the ECG as a diagnostic tool for heart problem, what is arrhythmia, types and management, the force of heart contraction and the heart failure, how respiration occurs, pulmonary pressures, factors controlling respiration, lung volumes, how the gases are exchanged across alveolar membrane, the function of hemoglobin in carrying oxygen, the meaning of and causes of hypoxia, the role of kidney in excretion of wastes, reabsorption of essential substances and regulation of blood pressure, how to assess renal blood flow and renal function.

In summary, the student will be able to understand cell, tissue, organ and organ system functions of human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions.

Teaching and Learning Strategies

1- Power point presentation (Theoretical)
2- Practical learning in Lab

Course Structure (theory)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 & 2					

Basic buildings in medical physiology

Introduction to physiology: The body as organized solutions; water, electrolytes, &

acid/base; pH and buffering; acid–base disorders; diffusion; osmosis; plasma osmolality and disease; osmolal concentration of plasma and tonicity; nonionic diffusion; genesis of the membrane potential.

 Energy production and transfer, biologic oxidations.

 Molecular building blocks nucleosides, nucleotides and nucleic acids; DNA; Replication: mitosis and meiosis; RNA.

 Amino acids and proteins; protein synthesis.

 Carbohydrates; citric acid cycle; factors determining the plasma glucose level.

 Fatty acids and lipids; fatty acid oxidation and synthesis; ketone bodies; cellular lipids; transport of lipids in blood; free fatty acid metabolism; cholesterol metabolism; essential fatty acids; eicosanoids.

3 & 4

Molecular basis in medical physiology:

Cellular physiology in medical physiology: Cell membrane; mitochondria; lysosomes; peroxisomes; microtubules; centrosomes; cilia.

Intercellular connections; nucleus and related structures; endoplasmic reticulum; ribosomes; apoptosis; molecular medicine; transport across cell membranes; membrane permeability & membrane transport proteins; Na; K ATPase.

Channelopathies; intercellular communication; receptors for chemical messengers;

mechanisms by which chemical messengers act; kinases in cancer: chronic myeloid leukemia; intracellular

Ca2+ as a second messenger; G proteins; inositol trisphosphate (IP3) and

diacylglycerol (DAG) as second messengers; the adenylyl cyclase and cAMP system; guanylyl cyclase and cGMP system; growth factors; homeostasis.

5 & 6

Excitable Tissues

 Nerves: Introduction; cellular elements in the CNS; neurons; axonal transport; action potential; excitation and conduction; resting membrane potential; ionic fluxes during action potential; nerve conduction; properties of mixed nerves.

 Synaptic and junctional transmission: synapses; function of synaptic elements; electrical events in postsynaptic neurons (excitatory and inhibitory postsynaptic potentials).

7 & 8

 Inhibition and facilitation at synapses (postsynaptic inhibition, presynaptic inhibition, presynaptic facilitation); neuromuscular transmission (neuromuscular junction); nerve endings in smooth and cardiac muscles; denervation supersensitivity.

Autonomic Nervous System (ANS)

 Anatomical aspects of ANS; differences between somatic and autonomic innervation; parasympathetic and sympathetic nervous systems; physiological antagonists; neurotrans-mitters at ANS divisions; cholinergic transmission; adrenergic transmission; receptors characteristics (cholinoceptors, adrenoceptors, dopamine receptors); effects of activating autonomic nerves; integration of autonomic function (local integration and systemic reflexes); complex organ control: the eye.

9 & 10

Excitable Tissue

 Muscle: Introduction; types of muscles.

 Skeletal muscle: skeletal muscle characteristics; sarcotubular system; electrical phenomena and ionic fluxes; contractile response; the muscle twitch; molecular basis of contraction.

 Role of Ca2+ ions in muscle contraction; types of muscle contraction; summation of muscle contraction; relation between muscle length, tension and velocity of contraction; fiber types; phosphoryl-creatinine; carbohydrate and lipid breakdown; the oxygen debt mechanism; heat production in muscle; properties of skeletal muscle in intact organism (the motor unit); electromyography.

Smooth muscles

 Smooth muscle characteristics; multi-unit smooth muscles; unitary smooth muscles; smooth muscle contraction and its control; muscle contraction; muscle relaxation; membrane activation; inputs influencing smooth muscle contractile activity.

11 & 12

Cardiac Muscles

Cardiac muscle characteristics; excitation-contraction coupling in cardiac muscle (contraction and relaxation); heart anatomy (contractile and conductive tissues); heart innervation (sympathetic and parasympathetic innervation); blood supply; heartbeat coordination; sequence of excitation.

Cardiovascular physiology: Electrical activity in the heart

Generation of cardiac excitation; spread of cardiac excitation; the electrocardiogram (ECG); cardiac rate.

Abnormal pacemakers; ectopic foci of excitation; reentry; atrial arrhythmias; consequence of atrial arrhythmias.

Ventricular arrhythmias; effect of changes in ionic composition of the blood; the heart as a pump; echocardiography; cardiac output; factors controlling cardiac output; cardiac contractility.

13 & 14

Respiratory Physiology

Respiratory organs; protective structures; mechanism of pulmonary ventilation; surfactant and its effect on surface tension.

Lung volumes and capacities; minute respiration volume.

Gas exchange; factors affecting the rate of gas diffusion through the respiratory membrane.

Transport of O_2 and CO_2 in blood and tissue; carrying of O_2 in blood; oxyhemoglobin dissociation curve; transfer of CO_2.

15

Renal Physiology

Functional anatomy; function of glomerular membrane; blood vessels; the kidney capsule; Innervation of the blood vessels; Renal blood flow.

Renal venous pressure; Regulation of renal blood flow; auto-regulation of renal blood flow. Glomerular Filtration Rate (GFR); Control of GFR; mechanism of tubular reabsorption and secretion; Na^+ reabsorption.

Glucose reabsorption; osmotic diuresis; water diuresis; regulation of Na^+ excretion; adrenocortical steroids; other humoral factors; water intoxication; regulation of K^+ excretion; diuretics.

Course Structure (practical)

Week	
1.	Introduction to the physiology
2.	Protein synthesis
3.	Tissue types in human body; Intercellular Communication
4.	Action potential
5.	Excitable tissue: Muscle cell
6.	Function of liver
7.	GIT motility
8.	Urinary System
9.	Seminars Nervous tissue
10.	Seminars Skeletal muscle
11.	Seminars cardiac tissue
12.	Seminars respiratory system
13.	Seminars urinary system
	Final exam

Course Evaluation

Theory Marking:

Mid Exam 15 marks Practical 20 marks

Activity 5 marks Final Exam 60 marks

Practical Marking:

10 marks: Quizzes

4 marks: Attendance & reports

6 marks: Final exam (OSPE)

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Textbook of Medical Physiology Guyton AC; latest edition. Review Medical Physiology; Ganong W.F (Ed.), Latest edition.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	1.Vander Human Physiology: The Mechanisms body function. Latest edition. 2. Review of Medical Physiology by Ganong W Latest edition.
Electronic References, Websites	

Course Description Form

Course Name: *Physiology II*
Course Code:
Semester / Year: Second semester, second stage, 2023-2-24
Description Preparation Date:11-3-2024
Available Attendance Forms: Official daily attendance
Number of Credit Hours (Total) / Number of Units (Total)
3 hrs Theoretical/ 2 hrs Practical
Course administrator's name (mention all, if more than one name)
Name: PhD. Lecturer Mohammed Mohsin Shallal Assist. lecturer: Amal Ghazi Muttar Email: Rxdtuja@gmail.com amal.ghazi.al-mimmar@gau.edu.ig
Course Objectives
The course aims to teach pharmacy students the functions of the organs and systems (the digestive system, the endocrine system and the physiology of blood). **Course Intended Outcomes:** **The functions and regulations of GI organs, GI glands, GI accessory glands (liver and**

pancreas), endocrine glands, endocrine gland secretions; and blood components (plasma, RBCs, WBCs and platelets). In addition, the course also gives examples on some pathophysiological Diseases functions of human being, and how to evaluate these functions and correlate them with normal and abnormal conditions.

Teaching and Learning Strategies

Power point presentation (Theoretical)

Practical learning in Lab

Course Structure (theory)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 & 2					
Digestive system Gastrointestinal function: function of stomach, small intestine, pancreas, liver, purpose of GI motility, large intestine, water absorption. Digestion and absorption of carbohydrates, proteins, fats, absorption of vitamins and minerals. Regulation of GIT basic principles: neural regulation, hormonal regulation, Phases of Gastrointestinal Control. Fatty acids and lipids; fatty acid oxidation and synthesis; ketone bodies; cellular lipids; transport of lipids in blood; free fatty acid metabolism; cholesterol metabolism; essential fatty acids; eicosanoids.					
3 & 4 Specific contractile and secretory processes that occur in each segment of the GIT: Mouth, Pharynx, and Esophagus (Chewing, salivation, swallowing)					

The stomach: anatomy, HCl Production and secretion, pepsin secretion, stimulation of pepsin, function of pepsin.

Gastric Motility: frequency and force of contraction.

Pancreatic Secretions: bicarbonate, enzymes, control of secretions.

Bile secretion, bile function.

Small intestine: anatomy, function, secretion, absorption, and motility.

Large intestine: anatomy, function, secretion and motility.

Pathophysiology of the GIT: Ulcers, vomiting, dehydrations, gallstones, constipation and diarrhea.

5, 6 & 7

Endocrine and reproductive physiology

General function or role of endocrine system, hormones (definition and classification), hormone secretion, hormone transport and clearance from the blood.

Mechanisms of Action of Hormones: Hormone Receptors and Their Activation

Hypothalamic regulation of hormonal functions: Hypothalamus maintains body homeostasis, anatomy of the hypothalamus, relation to the pituitary gland "hypophysis", signals to the hypothalamus (thirst).

Control of Posterior Pituitary Secretion (Vasopressin & Oxytocin), functions of vasopressin and oxytocin, Control of anterior pituitary hormones secretion. Cell types in the anterior pituitary.

Growth "somatotropic or somatotropin" hormone: physiological functions of GH, regulation of GH secretion.

Thyroid metabolic hormones: Anatomy of thyroid gland, function of thyroid gland, synthesis and secretion of the thyroid metabolic hormones, Physiologic microanatomy of the thyroid gland, synthesis of metabolic thyroid hormones, transport of

thyroxin and T3 to tissues.

8 & 9

Physiological Functions of the Thyroid Hormones: genomic and non-genomic effects, Regulation of TH Secretion, Diseases of the Thyroid.

Adrenocortical Hormones: Hormones of adrenal cortex (Mineralocorticoids and Glucocorticoids).

Functions and regulation of the Mineralocorticoids and Aldosterone hormones

Pancreatic Hormone Physiology: Anatomy of pancreas, Hormones of the pancreas.

Insulin: synthesis of insulin, metabolism and secretion, action of insulin.

Glucose: Glucose transporters, diabetes mellitus (DM).

Glucagon: Stimulants of secretion, inhibitors of secretion, Action of glucagon.

Somatostatin (SIH)

Somatotropin "STH" (growth hormone "GH")

10 & 11

Blood physiology

Function and composition, plasma, hemopoiesis, bone marrow, regulation of hemopoiesis.

Red blood cells: Erythropoiesis, regulation of erythropoiesis.

Hemoglobin (function, synthesis, destruction), anemia, red cell indices (MCV, MCHC, MCH), polycythemia.

White blood cells: Leukopoiesis, granulocytes & monocytes, diapedesis, phagocytosis, inflammation, immune mechanism & role of lymphocytes.

Blood types (blood groups): genetic determination of agglutinogens, blood tying, the Rh system, transfusion reactions.

Platelets: origin, structure & function, hemostasis and blood coagulation, clotting mechanisms, clot retraction, hemostatic control mechanism**.**

12 & 13

Blood disorders: Anemia, sickle cell disease, hemophilia, leukemia. Stem cell transplant.

Immunity

Innate immunity - first line (skin, nose, saliva, stomach, urine) - second line of defense (antimicrobial substances, natural killer cells and phagocytosis, microbial evasion of phagocytosis, phases of phagocytosis, inflammation, Abscess and ulcers.

Adaptive immunity: maturation of T-lymphocytes and B-lymphocytes, cell mediated immunity and humoral immunity, clonal selection, antigen and antigen receptors, diversity of antigen receptors, major histocompatibility complex antigen, pathways of antigen processing.

14 & 15

Activation of T-lymphocytes, activation and clonal selection of T-helper cells, activation and clonal selection of cytotoxic T-cells, elimination of invaders, immunological surveillance.

Antibody mediated (humoral) immunity: Activation and clonal selection of B-cells, antibodies (structure and action), role of complement system in immunity, immunological memory, self-recognition and self-tolerance.

Course Structure (practical)

Week	
1.	Hemoglobin estimation
2.	Packed cell volume
3.	RBC count
4.	ABO test
5.	WBC count
6.	Platelets count
7.	Bleeding time &clotting time
8.	Erythrocyte sedimentation rate
9.	Seminars Cardio vascular system
10.	Seminars Digestive system
11.	Seminars nervous system
12.	Seminars skeletal muscle
13.	Seminars immune system
14.	Seminars hematopoietic system
	Final exam

\Course Evaluation

1 Quizzes
2 - Oral examination
3- Make periodic reports on topics related to the material 4- Mid-term exam

5- The final exam

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Review of Medical Physiology; Ganong W.F (E Latest edition
Main references (sources)	
Recommended books and references (scientific journals, reports…)	1.Vander Human Physiology: The Mechanisms body function. Latest edition. 2. Review of Medical Physiology by Ganong W Latest edition.
Electronic References, Websites	

Course Description Form

Course Name: Biochemistry I
Course Code:
Semester / Year:
1st/ Third stage
Description Preparation Date:
22- 6 – 2025
.Available Attendance Forms:
Theoretical + practical
. Number of Credit Hours (Total) / Number of Units (Total)
3 hours theoretical + 2 hours practical/ 4 units
Course administrator's name (mention all, if more than one name)
Name: Ali mohammed ali alnuaimi ali.m.alnuaimi@gu.edu.iq
Course Objectives
• The objectives of the course include understanding the fundamentals and components of biological molecules, as well as the methods of their interactions within the living organism. This encompasses cellular metabolism and the extraction of energy.**.....** • Additionally, the course aims to comprehend the nature and occurrence of biochemical reactions within the body, including essential substances such as carbohydrates, fats, amino acids, and proteins**.....** • **....** The study involves investigating these substances in terms of their increase or decrease in individuals with various health conditions**.**
Teaching and Learning Strategies
1. **Discussion and Opinion Exchange:** • Use surveys or discussions to assess students' prior knowledge in topics related to biochemistry. • Connect new concepts with prior knowledge to enhance students' understanding. 2. **Interactive Learning:** • Conduct practical experiments or simulations to illustrate biochemical concepts.

	3. **Utilizing Technology:** • Depend on technological tools such as interactive presentations and digital simulations. 4. **Motivation and Curiosity Stimulation:** • Engage students in research projects or presentations on specific topics to stimulate curiosity. 5. **Collaborative Work:** • Encourage students to work collaboratively through group projects or group discussions. 6. **Continuous Assessment:** • Implement diverse assessment techniques such as written tests, practical projects, and oral performances. 7. **Focus on Critical Thinking:** • Encourage students to engage in critical thinking and analyze biochemical concepts.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Knowing Definitions and terms; proteins, enzymes, DNA;	Introduction to the macromolecule's biochemistry: Definitions and terms; proteins, enzymes, DNA; Clinical value.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
2	3	Amino acids: Structures	Amino acids: Structures of A.A (table of standard A.A abbreviation And side chain); Classification, properties, isomerism.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam

3	3	Amino acids: Chemical reactions	Amino acids: Chemical reactions, Zwitter ions, titration curve calculating isoelectric point values. Examples and questions. Non standards A.A: Structures, existence and clinical value.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
4	3	Peptides	Peptides: Peptide bond, resonance forms, isomers, physical properties and chemical reactions. Essential poly peptides in human body, structures, roles and clinical values.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
5	3	Proteins: Structure	Proteins: Structure and conformations of proteins, Primary structure, Secondary structure (4 helix, 5 sheet), tertiary structure, quaternary structure. Classification, synthesis, cellular functions (Enzymes, cell signaling, and ligand transport, structural proteins), protein in nutrition.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam

6	3	Denaturation of proteins and protein sequencing:	Denaturation of proteins and protein sequencing: Determining A.A composition, N- terminal A.A analysis, C- terminal A.A analysis, Edman degradation, prediction protein sequence from DNA/ RNA sequences. Methods of protein study: Protein purification, cellular localization, proteomics and bioinformatics, structure predication and simulation.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
7	3	Carbohydrates: Chemistry and classification	Carbohydrates: Chemistry and classification, biomedical importance, classification of CHO, Stereochemistry of monosaccharides, metabolism of CHO; Physiologically important monosaccharides, glycosides, disaccharides, polysaccharides.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
8	3	Classification of lipids	Lipids: Introduction, classification of lipids, fatty acids (F.A), nomenclature of F.A, saturated F.A, unsaturated F.A, physical and physiological properties of F.A, metabolism of lipids. Phospholipids, lipid peroxidation and antioxidants,	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam

			separation and identification of lipids, amphipathic lipids.		
9	3	Enzymes: Structures and mechanism	Enzymes: Structures and mechanism, nomenclature,	Interactive Lectures multimedia	Quiz, written exam

			classification, mechanisms of catalysis, thermodynamics, specificity, lock and key model, induced fit model, transition state stabilization, dynamics and function, allosteric modulation. Biological function, cofactors, coenzymes, involvement in disease.	presentations	Oral exam
11	2	Kinetics of enzymes	Kinetics: General principles, factors effecting enzyme rates (substrate conc., pH, temperature, etc), single-substrate reaction (Michaelis-Menten kinetics), kinetic constants. Examples of kinetic questions and solutions.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam

11	1	Enzyme inhibition	Enzyme inhibition: Reversible inhibitors, competitive and non competitive inhibition, mixed-type inhibition,Irreversible inhibition. Inhibition kinetics and binding affinities (ki), questions and solutions.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
12	1	Enzyme regulation	Control of activity and uses of inactivators; multi- substrate reactions, ternary-complex mechanisms, ping-pong mechanisms, non-Michaelis- Menten kinetics, pre-steady-state kinetics, chemical mechanisms.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
13	3	Nucleic Acid: Chemical structure, nucleic acid components	Nucleic Acid: Chemical structure, nucleic acid components, nucleic acid bases, nucleotides and deoxynucleotides (Properties, base pairing, sense and antisense, super-coiling, alternative structures, quadruple structures.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
14	2	Genes and genomes	Biological functions of DNA: Genes and genomes, transcription and translation, replication.	Interactive Lectures multimedia presentations	Quiz, written exam Oral

					exam
15	3	Plasma membrane structure and function	Biochemistry of extracellular and intracellular communication: Plasma membrane structure and function; Biomedical importance, membrane proteins associated with lipid bilayer, membranes protein composition, dynamic structures of membranes, a symmetric structures of membranes.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
1	1	Artificial membranes model	Artificial membranes model, the fluid mosaic model, membrane selectivity, physiological functions of plasma membranes.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam
2	3	Biochemistry of the endocrine system	Biochemistry of the endocrine system: Classification of hormones, biomedical importance, the target cell concept and hormone receptors, biochemistry of hormone action and signal transduction.	Interactive Lectures multimedia presentations	Quiz, written exam Oral exam

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	General urine examination: Physical properties.		lab	Quiz
2.	2	General urine examination: Chemical properties; Protein in urine; Sugar in urine.		lab	Quiz
3.	2	General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.		lab	Quiz
4.	2	General urine examination: Evaluation of unknown urine sample		lab	Quiz
5.	2	Cerebrospinal fluid analysis: Measurement of glucose in CSF.		lab	Quiz
6.	2	Cerebrospinal fluid analysis: Measurement of chloride in CSF.		lab	Quiz
7.	2	Cerebrospinal fluid analysis: Measurement of proteins in CSF.		lab	Quiz
8.	2	Serum calcium measurement.		lab	Quiz
9.	2	Blood phosphorus measurement (inorganic phosphate).		lab	Quiz
10.	2	Serum total proteins (quantitative analysis).		lab	Quiz
11.	2	Estimation of urea level in the blood.		lab	Quiz
12.	2	Measurement of serum uric acid level.		lab	Quiz
13.	2	Measurement of serum ascorbic acid level.		lab	Quiz
14.	2	Gastric juice analysis: Detection of free hydrochloric acid concentration.		lab	Quiz
15.	2	Gastric juice analysis: detection of free acid, total acid content.		lab	Quiz

23. Course Evaluation Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reportsetc 20 mark for practice + 20 mark for midterm exam + 60 mark for final exam

24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Harper's Illustrated Biochemistry
Main references (sources)	Lippincott's principles of biochemistry last edition
Recommended books and references (scientific journals, reports...)	Lehninger principles of biochemistry last edition
Electronic References, Websites	

Course Description Form

13. Course Name:	
Biochemistry II	
14. Course Code:	
15. Semester / Year:	
The second course / Third stage	
16. Description Preparation Date:	
22/6/2025	
17.Available Attendance Forms:	
attendance	
18.Number of Credit Hours (Total) / Number of Units (Total)	
Total hours= 5 / 4 unit	
19. Course administrator's name (mention all, if more than one name)	
Name: Ali mohammed ali alnuaimi ali.m.alnuaimi@gu.edu.iq	
20. Course Objectives	
Course Objectives	Describe the basic concepts of biochemistry
21. Teaching and Learning Strategies	
Strategy	Lectures – Practical – Quizes - Reports

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	metabolisim	Introduction	Attendance lectures	Exam
2-3	6			Attendance lectures	Exam
4-6	4			Attendance lectures	Exam
7-9	5			Attendance lectures	Exam
10	3	Glycolysis	Convertion glucose to pyruvate	Attendance lectures	Exam

11	4		.	Attendance lectures	Exam
12	4		.	Attendance lectures	Exam
13	2	Gluconeogenesis	Synthesis of glucose from amino acids and glycerol and lactate	Attendance lectures	Exam
14	2		.	Attendance lectures	Exam
15	5	Glycogenolysis And Gluconeogenesis	Breakdown of glycogen and synthesi of glycogen	Attendance lectures	Exam

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
16.	**2**	General urine examination: Physical properties.		**lab**	**Quiz**
17.	**2**	General urine examination: Chemical properties; Protein in urine; Sugar in urine.		**lab**	**Quiz**
18.	**2**	General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.		**lab**	**Quiz**
19.	**2**	General urine examination: Evaluation of unknown urine sample		**lab**	**Quiz**
20.	**2**	Cerebrospinal fluid analysis: Measurement of glucose in CSF.		**lab**	**Quiz**
21.	**2**	Cerebrospinal fluid analysis: Measurement of chloride in CSF.		**lab**	**Quiz**
22.	**2**	Cerebrospinal fluid analysis: Measurement of proteins in CSF.		**lab**	**Quiz**
23.	**2**	Serum calcium measurement.		**lab**	**Quiz**
24.	**2**	Blood phosphorus measurement (inorganic phosphate).		**lab**	**Quiz**
25.	**2**	Serum total proteins (quantitative analysis).		**lab**	**Quiz**

26.	**2**	Estimation of urea level in the blood.	**lab**	**Quiz**
27.	**2**	Measurement of serum uric acid level.	**lab**	**Quiz**
28.	**2**	Measurement of serum ascorbic acid level.	**lab**	**Quiz**
29.	**2**	Gastric juice analysis: Detection of free hydrochloric acid concentration.	**lab**	**Quiz**
30.	**2**	Gastric juice analysis: detection of free acid, total acid content.	**lab**	**Quiz**

23. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc
20 mark for practice + 20 mark for midterm exam + 60 mark for final exam

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	***Essentials in Lippincotte***
Main references (sources)	***Essentials in Lippincotte***
Recommended books and references (scientific journals, reports...)	***Essentials in Lippincotte***
Electronic References, Websites	Web of science

Course Description Form

13. Course Name:	
Inorganic Pharmaceutical Chemistry	
14. Course Code:	
15. Semester / Year:	
1st/ Third stage	
16. Description Preparation Date:	
22/6/2025	
17.Available Attendance Forms:	
Practical and theoretical	
18.Number of Credit Hours (Total) / Number of Units (Total)	
2Practical and2 theoretical	
19. Course administrator's name (mention all, if more than one name)	
Dr.Hamza fadil	
20. Course Objectives	
Course Objectives	Introducing students to atoms and molecules Explaining the role of inorganic products in pharmacy
21. Teaching and Learning Strategies	
Strategy	Theoretical lectures with teaching aids such as videos and diagrams Practical laboratories in which students actively conduct experimen

22. Course Structure

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

		Outcomes			
1-3	6	Understandi ng the structure of atoms and molecules	Atomic and molecular structure/ Complexation	Lectures	Exam + Quiz
4-6	6	Understandi ng the concept of essential and non- essential elements	Essential and trace ions: Iron, copper, sulfur, iodine Non-essential ions: Fluoride, bromide, lithium, gold, silver and mercury	Lectures	Exam+Quiz
7	2	The Chemistry of antacids	Antacids	Lectures	Exam + Quiz
9+8	4	Miscellaneo inorganic agents	• Protective adsorbents • Topical agents Dental agents	Lectures	Exam + Quiz
15-10	12	Understanding the concept of radio therapeutics	• Radiopharmaceutical preparations Radio opaque and contrast media	Lectures	Exam + Quiz
6-1	12	Acid base reactio	Acid base reactions	Lectures	Exam + Quiz
8-7	4	Assay of sodium benzoate	Assay of sodium benzoate	Lectures	Exam + Quiz
10+9	4	Assay of Borax	Assay of Borax	Lectures	Exam + Quiz
12+11	4	Assay of citric ac	Assay of citric acid	Lectures	Exam + Quiz
14+13	4	Assay of magnesium hydroxide	Assay of magnesium hydroxide	Lectures	Exam + Quiz
15	2	Assay of ammoniated mercury	Assay of ammoniated merc	Lectures	Exam + Quiz

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	**2**	Preparation and standardization of 1N HCl (known sample).		**lab**	**Quiz**

		Preparation and standardization of 1N HCl (quiz and unknown).		
2.	**2**	Preparation and standardization of 1N 1NaOH (known sample).	**lab**	**Quiz**
3.	**2**	Assay of NaOH solution (known sample).	**lab**	**Quiz**
4.	**2**	Assay of NaOH solution (unknown sample).	**lab**	**Quiz**
5.	**2**	Assay of sodium benzoate (known sample).	**lab**	**Quiz**
6.	**2**	Assay of Borax (explanation of basic concepts).	**lab**	**Quiz**
7.	**2**	Assay of citric acid (known sample).	**lab**	**Quiz**
8.	**2**	Assay of citric acid (unknown sample).	**lab**	**Quiz**
9.	**2**	Assay of magnesium hydroxide (known sample).	**lab**	**Quiz**
10.	**2**	Assay of ammoniated mercury (unknown sample).	**lab**	**Quiz**
11.	**2**	Solubilization of components of pharmaceutical preparations.	**lab**	**Quiz**
12.	**2**	Solubilization of Aspirin.	**lab**	**Quiz**
13.	**2**	Surface tension: measurements and calculations.	**lab**	**Quiz**
14.	**2**	Rate kinetic: Application in stability of pharmaceutical stability.	**lab**	**Quiz**
15.	**2**	Viscosity: Measurements and calculation.	**lab**	**Quiz**

23. Course Evaluation

20 Laboratory assessments, Quiz, report,… 20
mid-term exam
60 final exam

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Block, Roche Soine and Wilson, Inorga Medicinal and Pharmaceutical Chemistry,1986 Laboratory Handbook for Practical Pharmac Inorganic Chemistry adopted by the department.

Main references (sources)	Block, Roche Soine and Wilson, Inorga Medicinal and Pharmaceutical Chemistry,1986 Laboratory Handbook for Practical Pharmac Inorganic Chemistry adopted by the department.
Recommended books and references (scientific journals, reports...)	Block, Roche Soine and Wilson, Inorga Medicinal and Pharmaceutical Chemistry,1986 Laboratory Handbook for Practical Pharmac Inorganic Chemistry adopted by the department.
Electronic References, Websites	Pubmed, Google scholar

Course Description Form

1. Course Name:
Organic Pharmaceutical Chemistry I
2. Course Code:
3. Semester / Year:
2nd Semester/ 3rd year
4. Description Preparation Date:
22/6/2025
5. Available Attendance Forms:
Students' signatures on attendance sheets
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours theory + 2 hours practical (75) / 4 units
7. Course administrator's name (mention all, if more than one name)
Dr. Ahmed Sabah
8. Course Objectives

Course Objectives	• Introducing the students to pharmaceutical chemistry • Explaining modern drug design techniques • Introducing drug metabolism
9. Teaching and Learning Strategies	
Strategy	• Theory lectures with teaching aids such as videos and diagrams • Practical sessions where students actively perform experiments

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3+2	• Understanding the role of pharmaceutical chemistry in drug distribution • Understanding redox reactions	• Drug distribution • Redox reactions	• Lectures • Practical	• Paper-based exams • Lab-based unknows
2	3+2	• Understanding the effect of chemical properties on drug action	• Acid-base properties • Redox reactions	• Lectures • Practical	• Paper-based exams
		• Understanding redox reactions			• Lab-based quiz

3	3+2	• Understanding the concept of QSAR in drug design • Understanding redox reactions	• Statistical prediction of pharmacological activity • Redox reactions	• Lectures • Practical	• Paper-based exams • Lab-based quiz
4+5+6+7	12	• Applying the concepts of computer simulations to drug design	• Molecular modeling (Computer aided drug design) • Drug receptor interaction: force involved • Steric features of drugs • Optical isomerism and biological activity • Calculated conformation • Three- dimensional quantitative structure activity relationships and databases • Isosterism • Drug-receptor interaction and subsequent events	• Lectures	• Paper-based Exams
4+5+6	6	• Assay of ferrous sulfate	• Assay of ferrous sulfate	• Practical	• Lab-based unknown and quiz
7+8	4	• Preparation and standardization of 0.1Na2S2O4 solution	• Preparation and standardization of 0.1Na2S2O4 solution	• Practical	• Lab-based unknown and quiz
8-15	24	• Understanding the concept of drug metabolism and the factors affecting it	• General pathways of drug metabolism	• Lectures	• Paper- based exam
9+10	4	• Assay of copper sulfate	• Assay of copper sulfate	• Practical	• Lab-based unknown and quiz

4	• Assay of Chlorinated Lime	• Assay of Chlorinated Lime	• Practical	• Lab-based unknown and quiz
4	• Preparation and assay of Lugol's Solution	• Preparation and assay of Lugol's Solution	• Practical	• Lab-based unknown and quiz
2	• Assay of Alum	• Assay of Alum	• Practical	• Lab-based unknown and quiz

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Preparation and standardization of 0.1N KMnO4 (known sample).		lab	Quiz
2.	2	Assay of hydrogen peroxide solution (known sample).		lab	Quiz
3.	2	Assay of ferrous sulfate (known sample).		lab	Quiz
4.	2	Assay of ferrous sulfate (unknown sample).		lab	Quiz
5.	2	Preparation and standardization of 0.1Na2S2O4 solution (known sample).		lab	Quiz
6.	2	Assay of copper sulfate (known sample).		lab	Quiz
7.	2	Assay of copper sulfate (unknown sample).		lab	Quiz
8.	2	Assay of Chlorinated Lime (known sample).		lab	Quiz
9.	2	Assay of Chlorinated Lime (quiz and unknown).		lab	Quiz
10.	2	Preparation and assay of Lugol's Solution (known sample).		lab	Quiz

11.	**2**	Preparation and assay of Lugol's Solution (quiz and unknown).	**lab**	**Quiz**
12.	**2**	Preparation and standardization of 0.1N KMno4 (quiz and unknown).	**lab**	**Quiz**
13.	**2**	Assay of hydrogen peroxide solution (quiz and unknown sample).	**lab**	**Quiz**
14.	**2**	Preparation and standardization of 0.1Na2S2O4 solution (quiz and unknown sample).	**lab**	**Quiz**
15.	**2**	Assay of Chlorinated Lime (quiz and unknown).	**lab**	**Quiz**

11. Course Evaluation

- 20 M: Theoretical assessment (paper-based midterm exam, attendance)
- 20 M: Practical assessment (attendance, quizzes, unknows, reports)
- 60 M: paper-based theoretical final exam

_____

- 100 M total

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Wilson and Gisvold Textbook of Orga medicinal and Pharmaceutical chemis Delgado JN, Remers WA, (Eds); 12thediti 2010 Laboratory Handbook for Pract Pharmaceutical Chemistry adopted by department.
Main references (sources)	Wilson and Gisvold Textbook of Orga medicinal and Pharmaceutical chemis Delgado JN, Remers WA, (Eds); 12thediti 2010 Laboratory Handbook for Pract Pharmaceutical Chemistry adopted by department.
Recommended books and references (scientific journals, reports...)	Handbook for Practical Pharmaceutical Chemistry Adopted by the Department
Electronic References, Websites	https://www.sciencedirect.com/book/9780128028381/organic-chemistry

Course Description Form

13. Course Name:
Pharmacognosy II
14. Course Code:
15. Semester / Year:
First course /Third stage
16. Description Preparation Date:
22/6/2025
17.Available Attendance Forms:
Practical and theoretical
18.Number of Credit Hours (Total) / Number of Units (Total)
2 Practical and2 theoretical
19. Course administrator's name (mention all, if more than one name)
Dr. Sabah alnuaimi

20. Course Objectives	
Course objectives: The first course includes an introduction the biological compositions of the biological materials form in primary and secondary plants, in addition to knowing t types of carbohydrates, glycosides, volatile and fixed o resins, vitamins, and amino acids, in addition to studying t plant families of these types.	Knowing the types of plan specific to each type..... Knowing how to extract th active ingredient..... Knowing the benefits and reasons for using plants for each type..

21. Teaching and Learning Strategies	
Strategy	-Using modern methods in presenting lectures in the form of slides - Video clips and explanatory diagrams - Visiting the medicinal plants garden and submitting scientific repo - Monitoring students' attendance - Asking questions during the lecture - Conducting surprise oral and written exams - Conducting extracurricular activities

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to Medicinal Plants and Bioactive Components Medicinal Plants	Introduction:General biosynthesis thwaysof secondary metabolites	Deliver g lectur and discuss ns in person, carryin out practic experi nts	Discuss ns, conduc g evaluat ns of t theoret al a practic aspects conduc g surpr exams, activiti and homew k.
	2	carbohydrates	carbohydrates		
3&4	5	Glycosides :biosynthesis, physical and Chemicalproperties ;cardiacglycosides ;saponinglycosides ;antheroquonone glycosides;flavonoid glycosidescyanophore glycosides	Glycosides :biosynthe physical and Chemicalproperties ;cardiacglycosides ;saponinglycosides ;antheroquonone glycosides;flavonoid glycosidescyanophore glycosides		
5&6 &7	5	Isothiocyanate glycosides;aldehyde,alcoh c,phenolic, lactone coumarines& chromones glycosides	Isothiocyanate glycosides;aldehyde,alcoho phenolic, lacto coumarines& chromo glycosides		
8	2	Resins &resin combination	Resins &resin combination		

9&10	3	Lipids:fixed oils &waxes	Lipids:fixed oils &waxes		
11 &12	4	Volatile oils :introduction ,chemistry of volatile oils ,biosynthesis of volatile l ,hydrocarbons as volatile , oils alcohols as volatile oils aldehydes as volatile oils	latile oils :introduction emistry of volatile oils ,biosynthesis of volatile ,hydrocarbons as volatile , oils alcohols as volatile o aldehydes as volatile oils		
13	3	Ketones ,phenols oxides, ,ester phenolic ethers as volatile oils	tones ,phenols oxides, ,ester phenolic ethers as volat oils		
14	2	Non- medicinal toxic plant	Non- medicinal toxic plants		
15	2	Vitamins &amino acids	Vitamins &amino acids		

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Gastric juice analysis: Detection of free hydrochloric acid concentration.		lab	Quiz
2.	2	Gastric juice analysis: detection of free acid, total acid content.		lab	Quiz
3.	2	Cardio-active glycosides		lab	Quiz
4.	2	Anthraquinone glycosides		lab	Quiz
5.	2	Saponin glycosides.		lab	Quiz
6.	2	Tannins.		lab	Quiz
7.	2	Volatile oils		lab	Quiz
8.	2	Flavonoid glycoside		lab	Quiz

23. Course Evaluation

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

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	• Trease and Evans Pharmacogno William Charles Evans, 16th ed. •Pharmacognosy by Var E- Tyler, 7th ed. •Fundimentals Pharmacognosy and Phytotherapy, Michael Heinrich, 2nd ed
Main references (sources)	Pharmacognosy by Varro- Tyler, 7th ed.
Recommended books and references (scientific journals, reports...)	Academic journals related to the topics of drugs and medicinal plants on the sites of Google Scholar, Wikipedia

Course Description Form

13. Course Name:	
Pharmacognosy III	
14. Course Code:	
15. Semester / Year:	
Second course / Third stage	
16. Description Preparation Date:	
22/6/2025	
17.Available Attendance Forms:	
Practical and theoretical	
18.Number of Credit Hours (Total) / Number of Units (Total)	
2Practical and2 theoretical	
19. Course administrator's name (mention all, if more than one name)	
Dr.sabah alnuaimi	
20. Course Objectives	
Course Objectives Course objectives: Study the alkaloids and plant families of these types, study the antibiotics an Phytotherapy..	• **Knowing the types of plants specific t each type…..** • **Knowing how to extract the active ingredient…..** • **•Knowing the benefits and reasons for using plants for each type.....**

21. Teaching and Learning Strategies	
Strategy	-Using modern methods in presenting lectures in the form of slides -Video clips and explanatory diagrams -Visiting the medicinal plants garden and submitting scientif reports -Monitoring students' attendance -Asking questions during the lecture -Conducting surprise oral and written exams -Conducting extracurricular activities

22. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
7-1 11-8 11 15	11 6 11	This cou is intend to stu chemistr of ot natural products h namely alkaloids and antibioti Also t course includes studying phytothe	Theor aloids - Antibiot ics -2 3- Hydr	presence	Quizes, home wor activates
1 2 3	2 2 2	xtraction active mpound m plants and entificati on	practica l 1- The Alkaloid s 2- The Isolation	presence	,Quizes me work activates
4 5	2 2		Piperine from Blac Pepper 4- Isolation Tropan from Datura Alkaloids		

6	2		5- Identification Tropane from Datura Alkaloids		
7	2		6-Isolation of Indo from Harmala Alkaloids		
8	2		7- Identification of Indole from Harmala Alkaloids		
9	2		8- Isolation of puri of Caffeine From T		
10	2				
11	2		9- Identification of purine of Caffeine From Tea		
12	2		10- Isolation of Isoquinoline Alkaloids		
13	2		11-- Identification Isoquinoline Alkaloids		
			12- Isolation of Citr Acid		
			3- Identification of Citric Acid		

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Alkaloids piperine		lab	Quiz
2.	2	Black pepper		lab	Quiz
3.	2	Tropaine alkaloids		lab	Quiz
4.	2	Indole alkaloids		lab	Quiz
5.	2	Identification of Harmala alkaloids		lab	Quiz
6.	2	Purine bases		lab	Quiz
7.	2	Isoquinoline alkaloids		lab	Quiz
8.	2	Citric acid		lab	Quiz

23. Course Evaluation

20% practical(Attendance, homework, reports, Extra activities),20% midterm exam,40%final term exam

24. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• Trease and Evans Pharmacognosy, William Charles Evans, 16th ed. •Pharmacognosy by Varro- E- Tyler , 7th ed. •Fundimentals of Pharmacognosy and Phytotherapy , Michael Heinrich, 2nd ed
Main references (sources)	Pharmacognosy by Varro- E- Tyler,7 ed.
Recommended books and references (scientific journals, reports...)	Academic journals related to the topics of drugs and medicinal plants on the sites of Google Scholar, Wikipedia
Electronic References, Websites	-Uptodate Electronic Encyclopedi -Free book, reports and articles b internate -Almustaqbal University website lecture system for the Faculty of Pharmacy

Course Description Form

13.Course Name:
Pharmacology I
14.Course Code:
15.Semester / Year:
First course / Third stage
16.Description Preparation Date:
22/6/2025
17.Available Attendance Forms:
Official full attendance
18.Number of Credit Hours (Total) / Number of Units (Total)
45 hours / 3
19.Course administrator's name (mention all, if more than one name)
Dr. Atheer Khdyair Hamad
20.Course Objectives

Course Objectives	**- Prepare qualified students capable of practicing the profession of pharmacy in both the public and private sectors.** **- Empower students to acquire self-learning skills and recognize the most important sources of knowledge, learning to develop their specialized and general capabilities.** **- Harmonize theoretical trends with practical realities in pharmaceutical sciences.** **- Enable students to familiarize themselves with scientific research tools and work on utilizing them in both academic and practical fields.** **- Keep pace with modern scientific developments in pharmaceutical sciences and work on employing them.** **- Prepare and qualify students to pursue further studies in graduate studies by developing their intellectual, scientific, and research skills.**
21.Teaching and Learning Strategies	
Strategy	1. Multimedia electronic and face-to-face lectures, depending on the general circumstances. 2. Discussion sessions. 3. Student groups. 4. Scientific trips. 5. E-learning within the college. 6. Presentation experiments. 7. Workshops.

22. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	Introduction to Pharmacology	General introduction to Pharmacology.	Face to face lectures and	Written and oral exams and
	4	Understanding Drug	Pharmacokinetics.		

		Pharmacokinetics		discussions	direct questions
3-4	4	Understanding Drug Mechanisms of Action on Receptors	Drug Receptor interaction and Pharmacodynamics.		
	2	Familiarity with Autonomic Nervous System Drugs	The autonomic nervous system (ANS).		
5-6	6	Understanding Drugs Affecting the Sympathetic Nervous System	Cholinergic system.		
7-8	6	Understanding Drugs Affecting the Parasympathetic Nervous System	Adrenergic system.	Face to face lectures and discussions	Written and oral exams and direct questions
9-10	2	Understanding the Basic Principles of Antimicrobials	Principal of antimicrobial therapy.		
	4	Familiarity with Beta-lactamase Inhibitors	β- lactam and other cell wall synthesis inhibitor antibiotics		
11	4	Understanding Protein Synthesis Inhibitors	Protein synthesis inhibitors		
12	3	Familiarity with Quinolone Drugs, Foliate Antagonists, and Urinary Tract Infection Antibiotics	Quinolones, Folate antagonists, and urinary tract antiseptics.		
13	2	Familiarity with Mycobacterial Agents	Antimycobacterial drugs	Face to face lectures and discussions	Written and oral exams and direct questions
14	2	Understanding Antifungal Agents	Antifungal drugs.		
	1	Understanding Antiparasitic Agents	Antiprotozoal drugs.		
15	2	Understanding Anthelmintic Agents	Anthelmintic drugs.		

Course description (practical)

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	2	Routs of drug administration Onset and duration of drugs (Barbiturates)		lab	Quiz
2.	2	Absorption and excretion of drugs		lab	Quiz
3.	2	Effect of parasympathomimetics on gland secretions		lab	Quiz
4.	2	Drugs and human eye.		lab	Quiz
5.	2	The effects of drugs on IOP rabbits		lab	Quiz
6.	2	Evaluation of opioid analgesics		lab	Quiz
7.	2	Evaluation of NSAIDS		lab	Quiz
8.	2	Evaluation of anti-parkinsonian drugs		lab	Quiz
9.	2	Evaluation of anti- convulsant drugs		lab	Quiz
10.	2	The effects of drugs and their antagonists on isolated rats ileum		lab	Quiz
11.	2	The effects of drugs and their antagonists on isolated rabbits ileum		lab	Quiz

23.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.....etc	
24.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lippincott Illustrated Reviews Pharmacology by Karen Whalen 7th edition (2019).
Main references (sources)	Pharmacopeia
Recommended books and references (scientific journals, reports...)	Scientific journals

Course Description Form

13.Course Name:
Pharmacy Ethics
14.Course Code:
15.Semester / Year:
Second / Third stage
16.Description Preparation Date:
22/6/2025
17.Available Attendance Forms:
Face-to-face lectures
18.Number of Credit Hours (Total) / Number of Units (Total)
15 hours / 1
19.Course administrator's name (mention all, if more than one name)
Name: Ali mohammed ali alnuaimi ali.m.alnuaimi@gu.edu.iq

20.Course Objectives	
Course Objectives	**- Prepare qualified students capable of practicing the profession of pharmacy in both the public and private sectors.** **- Harmonize theoretical trends with practical realities in pharmaceutical sciences.** **- Enable students to familiarize themselves with scientific research tools and work on utilizing them in both academic and practical fields.**

21.Teaching and Learning Strategies	
Strategy	1. Multimedia electronic and face-to-face lectures, depending on the general circumstances. 2. Discussion sessions. 3. Student groups. 4. Scientific trips. 5. E-learning within the college. 6. Presentation experiments. 7. Workshops.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	1	Introduction to Pharmacy Ethics	General introduction to Pharmacy Ethics.	Face to face lectures and discussions	Written and oral exams and direct questions
	1	Introduction to Pharmacy Ethics	General introduction to Pharmacy Ethics.		
3-4	1	Code of Ethics (1)	Code Of Ethics for Pharmacists		

			Concerning Patients		
	1	Code of Ethics (2)	Code Of Ethics For Pharmacists Concerning Other Healthcare Professionals		
5	1	Ethical Principles Part I	Non-Maleficence Example		
6	1	Ethical Principles Part II	Fidelity	Face to face lectures and discussions	Written and oral exams and direct questions
7-8	2	Ethical Issues in Medical Research Part I	Clinical (research)Trial		
9-10	2	ethical issues in medical research part II	Medico Ethical Decline – a History		
11-12	2	Prevention of Drug Abuse	Describe type of dependance		
13-14	1	اخلاقيات المهنة	**شروط مزاولة المهنة**		
	1	**قانون نقابة الصيادلة رقم (111) لسنة 1611**	استعراض مفردات القانون		
15	1	Exam			

23.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports..... etc	
24.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Lippincott Illustrated Reviews Pharmacology by Karen Whalen 7th edition (2019).
Main references (sources)	Case_Ethics_by_Rober
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Websites

Course Description Form

5. Course Name:
Pathophysiology
6. Course Code:
7. Semester / Year:
Third year / first semester
8. Description Preparation Date:
22/6/2025
9. Available Attendance Forms: official full attendance
Official full attendance
10. Number of Credit Hours (Total) / Number of Units (Total)
11. Course administrator's name (mention all, if more than one name)
Dr. Atheer Khdyair Hamad
12. Course Objectives
Course Objectives Describe the basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation. Outline basic pathological factors that influence the disease process. Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems. Describe clinical manifestations associated with the diseased organ(s).
13. Teaching and Learning Strategies

Lectures – Practical – Quizes - Reports

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Studying the basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation. Outline basic pathological factors that influence the disease process. Describe the impact and abnormal	introduction	Attendance lectures	Exam
2-3	6		Cell injury and tissue response; Degeneration; Necrosis; Atrophy; Hypertrophy; taplasia an d Calcification; ammation and Repair	Attendance lectures	Exam

4-6	4	functions upon the organ (s) associated with the disease process of targeted body systems. Describe clinical manifestations dociated with diseased organ	Disorders of electrolytes and water and acid–base balances: Hyper and Hyponatremia; Hyper and Hypokalemia; Syndrome of inappropriate secretion of ADH; Diabetes insipidus; Metabolic acidosis and alkalosis; Respiratory sis an d alkalosis.	Attendance lectures	Exam
7-9	5		Disorders of cardiovascular system: Hyperemia; Congestion and edema; Thrombosis; embolism and infarction; Shock; Coronary heart disease and MI; Rheumatic heart disease; Heart	Attendance lectures	Exam
			failure; Acute pulmonary edema; Essential hypertension; Secondary hypertension; Malignant hypertension; Hypotension; eurysm versus varicose veins;		

10	3	st	Disorders of respiratory system: Pneumonias; Tuberculosis; Respiratory distress syndrome; Bronchial asthma; Emphysema and bronchiectasis; ic fibrosis ; Pulmonary embolism; Pulmonary hypertensio n	Attendance lectures	Exam
11	4		Disorders of the renal system: Nephrotic syndrome; Glomerulonephritis; Diabetic glomerulosclerosis; Hypertensive glomerular disease; Pyelonephritis; Drug related nephropathies; Acute renal failure; Chronic renal failure.	Attendance lectures	Exam
12	4		Disorders of GI and hepatobiliary systems: Peptic ulcer and Zollinger – Ellison syndrome; Irritable bowel syndrome; Crohn's disease; Diarrhea;	Attendance lectures	Exam

			Celiac disease; Viral hepatitis; Primary biliary cirrhosis; Liver failure; Cholelithiasis.		
13	2		Disorders of thyroid function: Hypothyroidism.Hyperthyroidism. Graves' s ease.Thyrotoxi cosis.	Attendance lectures	Exam
14	2		Disorders of adrenal function: Cushing syndrome. Adrenal cortical insufficiency (primary and secondary). Congenital adrenal hyperplasia. heochromocyto ma.	Attendance lectures	Exam
15	5		betes mellitus metaboli c syndrome; slipoproteine m ia	Attendance lectures	Exam

Course description (practical)		
weeks	**Laboratory sessions & *Clinical requirements***	hours
1	Cell injury	2
2	Inflammation	2
3 4	Homeostasis and thrombosis	2
5 6	Growth disturbance	2
7 8	Liver diseases	2
9 10	Neoplasia	2
11 12	Renal system	2
13 14	Respiratory diseases	2
15	Cardiovascular system	2
16	Gastrointestinal system	2

3. Course evaluation weekly examination reports Homeworks

4. Learning and Teaching Resources	
Required textbooks (curricular books, if a	**Carol Mattson Porth 2nd Ed.**
Main references (sources)	**Lab Manual for Practical Pathophysiology Adopted the Department**
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

14. Course Name:
Pharmaceutical Technology I
15. Course Code:
16. Semester / Year:
First Semester / Third Year
17. Description Preparation Date:
22-6-2025
18.Available Attendance Forms: official
full attendance
19.Number of Credit Hours (Total) / Number of Units (Total)
3 hours for theoretical & 2hours for practical weekly
20. Course administrator's name (mention all, if more than one name)
Dr.Ahmed Yaseen Alsharea ahmed.y.alsharea@gu.edu.iq Dr .Ahmed Sabah Muneef ahmed.s.moneef@gu.edu.iq
21. Course Objectives
Course Objectives Studying 0f different types of dosage forms of different drugs.

- Studying the method of preparation of these dosage forms.
- Stability study of these dosage forms.
- Handling and storage of these dosage forms.

22. Teaching and Learning Strategies

- Theoretical lectures.
- Practical experiments.
- Scientific reports.
- Laboratory research training.
- Visiting tours in medical factory.

23. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction	Introduction about pharmaceutical technology	Power point presentation	Witten and oral examination
2	3	Dispersion system	Definition, types, examples, classification and preparation	Power point presentatio	Witten and oral examination

3	3	Solubility	Definition, grades, factors affecting, effect on preparation	Power point presentatio	Witten and oral examination
4	3	Solutions	Definition, types, advantages, preparation, and factors affecting	Power point presentatio	Witten and oral examination
5	3	Waters according USP	Definition, types, characteristics, and uses	Power point presentatio	Witten and oral examination
6	3	Syrup	Definition, types, uses	Power point presentatio	Witten and oral examination
7	3	Elixirs and spirt	Definition, types,	Power point presentatio	Witten and oral examination

			features, problems, preservatives, preparation, and storage		
8	3	Extraction	Definitions, differences with syrup, uses and preparation	Power point presentatio	Witten and oral examination
9	3	Clarification	Definition, methods, types, uses	Power point presentatio	Witten and oral examination
10	3	Colloidal dispersion	Definition, methods, materials used, benefits	Power point presentatio	Witten and oral examination
11	3	Suspension	Definition, types, applications, classification	Power point presentatio	Witten and oral examination

12	3	Official solutions	Definition, types, uses, differences, and applications	Power point presentatio	Witten and oral examination

Course description (practical)		
weeks	**Laboratory sessions & *Clinical requirements***	hours
1	Introduction	2
2	Dispersion system	2
3	Solubility	2
4	Solutions	2
5	Waters according USP	2
6	Syrup	2
7	Elixirs and spirt	2
8	Extraction	2
9	Clarification	2
10	Colloidal dispersion	2
11	Suspension	2
12	Official solutions	2

5. Course evaluation weekly examination reports Homeworks	
6. Learning and Teaching Resources	
Required textbooks (curricular books, if a	**1-Pharmaceutical Dosage forms and Drug Delivery Systems by Haward A. Ansel; latest edition.** **2- Sprowel's American Pharmacy**
Main references (sources)	
Recommended books and references (scientific journals, reports…)	1- British pharmacopoeia 2- United State Pharmacopoeias 3- European Pharmacopeias
Electronic References, Websites	nternet sources including official sit research papers, academic foundations, and others.

Course Description Form

24. Course Name:
Pharmaceutical Technology II
25. Course Code:
26. Semester / Year:
Second Semester / Third Year
27. Description Preparation Date:
22-6-2025
28. Available Attendance Forms: official
full attendance
29. Number of Credit Hours (Total) / Number of Units (Total)
3 hours for theoretical & 2hours for practical weekly
30. Course administrator's name (mention all, if more than one name)
Dr.Ahmed Yaseen Alsharea ahmed.y.alsharea@gu.edu.iq Dr .Ahmed Sabah Muneef ahmed.s.moneef@gu.edu.iq
31. Course Objectives
Course Objectives Studying 0f different types of dosage forms of different drugs. • Studying the method of preparation of these dosage forms. • Stability study of these dosage forms. • Handling and storage of these dosage forms.

32. Teaching and Learning Strategies

- Theoretical lectures.
- Practical experiments.
- Scientific reports.
- Laboratory research training.
- Visiting tours in medical factory.

33. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Emulsion	Introduction types, different physical states ,properties	Power point presentation	Witten and oral examination
2	3	Emulsion	Prepartion methods and stability study	Power point presentatio	Witten and oral examination
3	3	Semisolid	Types ,components and propertes	Power point presentatio	Witten and oral examination
4	3	Semisolid	Method of prepration ,uses and marketed forms	Power point presentatio	Witten and oral examination

5	3	Suppositories	Definition, types, characteristics, and uses	Power point presentatio	Witten and oral examination
6	3	Suppositories	Method of prepration ,difficulties in prepration and different doses and uses	Power point presentatio	Witten and oral examination
7	3	Powder and granules	Introduction different physical states rhe	Power point presentatio	Witten and oral examination
8	3	Capsules	Definitions, differences with syrup, uses and preparation	Power point presentatio	Witten and oral examination
9	3	Capsules	Method of preparations,	Power point	Witten and

			filling techniques ,compassion between	presentatio	oral examination
10	3	Aerosols	Introduction, types, components and forms of aerosols	Power point presentatio	Witten and oral examination
11	3	Incompatibility	Definition, types, causes, and ation	Power point presentatio	Witten and oral examination

Course description (practical)		
weeks	**Laboratory sessions & *Clinical requirements***	hours
1	Emulsion	2
2	Emulsion	2
3	Semisolid	2
4	Semisolid	2
5	Suppositories	2
6	Suppositories	2
7	Powders and granules	2
8	Capsules	2
9	Capsules	2
10	Aerosols	2
11	Incompatibility	2

7. Course evaluation weekly examination reports Homeworks	
8. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**1-Pharmaceutical Dosage forms and Drug Delivery Systems by Haward A. Ansel; latest edition.** **2- Sprowel's American Pharmacy**
Main references (sources)	
Recommended books and references (scientific journals, reports...)	1- British pharmacopoeia 2- United State Pharmacopoeias 3- European Pharmacopeias
Electronic References, Websites	nternet sources including official sites, research papers, academic foundations, and others.