

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



Academic Program and Course Description Guide

University of Al-Ameed – College of Pharmacy



2024-2025

First: Academic Program Description Form

University Name: Al-Ameed University

Faculty/Institute: Collage of Pharmacy University of Al-Ameed

Scientific Department: Collage of Pharmacy

Academic or Professional Program Name:

Bachelor of Pharmacy Sciences - Undergraduate Study

Final Certificate Name:

Bachelor's degree in Pharmaceutical Sciences

Academic System: A college with a semi-annual semester system

Description Preparation Date: 20/5/2024

File Completion Date: 2/6/2024

Signature:

Head of Department Name:

Date:



Signature:

Scientific Associate Name:

Asst. Prof. Dr. Haider Fali'h

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Lecturer Assistant: Najah Hamza

Date:

Signature:



Approval of the Dean

Uday A. Alrikabi

Prof. Dr. Uday Alrikabi

1. Program Vision

The academic program of the College of Pharmacy aims to prepare outstanding pharmacists, both scientifically and professionally, who are capable of providing advanced pharmaceutical services, adhering to professional ethics, and keeping pace with research and technological developments in the pharmaceutical field.

2. Program Mission

The College of Pharmacy aims to develop competent pharmacists who excel in pharmaceutical care, drug innovation, and research. We prepare graduates with advanced scientific and practical skills to meet healthcare needs and contribute to global pharmaceutical progress.

3. Program Objectives

- Preparing competent pharmacists capable of performing efficiently in various fields of clinical and practical pharmacy.
- Empowering students to actively participate in the healthcare system and deliver exceptional pharmaceutical care, with a focus on scientific healthcare principles in the community.
- Developing students' innovative abilities in pharmacy by mastering modern techniques, advanced tools, and understanding drug interactions and side effects.
- Enhancing pharmaceutical research by involving students in pioneering research projects that advance the profession.
- Building leadership and management skills, with an emphasis on critical thinking and sound decision-making.
- Improving patient communication skills through clinical, personal, and social pharmacy training, preparing them for teamwork in the medical field.
- To prepare graduates who can address challenges and solve problems creatively while upholding the highest standards of quality in all pharmaceutical practices.

4. Program Accreditation

Not yet

5. Other external influences

Library research - extracurricular activities - volunteer activities - other

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	7	13	7.3%	Basic
College Requirements	54	166	92.7%	Basic
Department Requirements	-	-	-	-
Summer Training				Pass
Other				

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

7. Program description				
Year/level	course code	Name of the course	Credit hours	
			theoretical	Practical
First year/first semester	101 CIHb	Biology	2	2
	102 PPpp	Principles of Pharmacy Practice	2	-
	103 PcAc	Analytical Chemistry	3	2
	104 PtMt	medical terminology	1	-
	105 CIMb	Mathematics and Biostatistics	3	-
		Democracy and human rights	2	-
First year/second semester	108 CIHa	Human Anatomy	1	2
	109 PPhc	Pharmaceutical calculations	2	2
	110 CIMp	Medical Physics	2	2
	111 PcOc1	Organic Chemistry I	3	2
	109 PPhc	Histology	2	2
	1011 COMP	Computer Sciences II	1	2
Second year/first semester	216 PcOc2	Organic Chemistry II	3	2
	217 CIMm	Microbiology I	3	2
	218 PPp1	Physical Pharmacy I	3	2
	219 Ptph1	Physiology I	3	2
	2011 COMP	Computer Sciences	-	2
		Baath Party crimes in IRAQ	2	-

Second year/second semester	223 PcOc3	Organic Chemistry III	2	2
	224 CIMv	Microbiology II	3	2
	225 PPp2	Physical Pharmacy II	3	2
	226 PtPh2	Physiology II	3	2
	227 phpa1	Pharmacognosy I	3	2
	2011 COMP	Computer Sciences	-	2
		Arabic language	2	-

Third year/ first semester	330Pclc	Inorganic pharmaceutical chemistry	2	2
	331 phpa2	Pharmacognosy II	2	2
	332 PPt1	Pharmaceutical Technology I	3	2
	333 ClBi1	Biochemistry I	3	2
	335 ClPy	Pathophysiology	3	2
Third year/second semester	337 PcOp1	Organic Pharmaceutical Chemistry I	3	2
	338 PtPc1	Pharmacology I	3	-
	339 Ppt2	Pharmaceutical Technology II	3	2
	340 ClBi2	Biochemistry II	3	2
	341 PhPa3	Pharmacognosy III	2	2
	342 CpPe	Pharmacy Ethics	1	-
Fourth year first/ semester	444 PtPc2	Pharmacology II	3	2
	445 PcOp2	Organic Pharmaceutical Chemistry II	3	2
	446 CpCp1	Clinical Pharmacy I	2	2
	447 PBp	Biopharmaceutics	2	2
	448 ClPu	Public Health	2	-
Fourth year/second semester	451 PtPc3	Pharmacology III	2	-
	452 PcOp3	Organic Pharmaceutical Chemistry III	3	2
	453 CpCp2	Clinical Pharmacy II	2	2
	454 PtGt	General Toxicology	2	2
	455 Plp1	Industrial Pharmacy I	3	2
	456 CpCs	Communication Skills	2	-
Fifth year/ first semester	557 PcOp4	Organic Pharmaceutical Chemistry IV	2	-
	558 Plp2	Industrial Pharmacy II	3	2
	559 CpAt1	Applied Therapeutics I	3	-
	560 ClCc	Clinical chemistry	3	2
	561 ClCl	Clinical laboratory training	-	4
	562 PtCt	Clinical toxicology	2	2
	563 Pr	Graduation Project	1	-
	564 CpPm	Pharmacoeconomics	2	-

Fifth year/second semester	565 CpAt2	Applied Therapeutics II	2	-
	566 CpTd	Therapeutic Drug Monitoring	2	2
	567 PcAp	Advanced Pharmaceutical Analysis	3	2
	568 CpHt	Hospital Training	-	4
	569 PDf	Dosage Form Design	2	-
	570 PiPb	Pharmaceutical Biotechnology	1	-

8. Expected learning outcomes for the pharmacy program

Knowledge

	1. Enabling the student to obtain knowledge in the basic, subjects related to medical and pharmaceutical sciences including human biology, histology, anatomy, body functions, diseases, immunity, bacteria and viruses.
	2. The student's knowledge of the structure of chemicals and methods of detection Preparing and diagnosing pharmaceutical chemical compounds and linking the chemical composition of the drug to its pharmacological effectiveness and mechanism of action.
	3. Describes the various types of medicines, their therapeutic effects , and their side effects and toxicity on the humanbody.
	4. Knowledge of the physical properties of pharmaceutical compounds and their stability and its movement within the body to calculate the correct therapeutic doses.
	5. Knowledge of the theoretical foundations of manufacturing and evaluating various pharmaceutical forms, Methods of optimal preparation and storage of medical preparations.

	6. Identify medical terminology, prescribe the most appropriate treatment according to the diagnosis of the disease with the least side effects, and understand drug and disease interactions.
	7. Identify the physical, chemical and biological properties of natural materials used for medical or health purposes.
	8. Understanding mathematical operations, medical statistics and medical physics.
Skills	
	1. Giving the student the ability to link applied concepts and models to practical reality through applying practical experiments in college laboratories and implementing safety and security instructions during laboratory work
	2. Providing the graduate with the skill to communicate effectively with medical staff, patients, and society at all levels of competence. The idea and the social and the soul and health.
	3. Working efficiently in pharmacies through full knowledge of the privacy of dispensing medications, guiding the patient on how to use them, and providing advice to him.
	4. Efficiency in practicing clinical work and supporting medical staff in hospitals.
	5. Providing the graduate with the ability to manage pharmaceutical facilities, know the optimal methods for standardization and quality control, examine and store medicines, and practice pharmaceutical skills in developing the pharmaceutical industry.

	6. Proficiency in the English language and use of electronic computers.
	7. The ability to conduct pharmaceutical and clinical research.
Values	
	1. Enabling students to work in a team spirit and use teamwork leadership and creativity skills.
	2. The ability to take responsibility to make the right decisions that serve the patient.
	3. The student's commitment to the ethics of the pharmacy profession.
	4. Practicing his pharmaceutical work in order to improve human health and provide health care to patients.
	5. Practicing the principles and methodologies of scientific conducting and evaluating pharmaceutical research when and clinical research and the ethics of research work related to it.
	6. Learn about the crimes committed by the Baath Party during the time of the previous regime.
	7. Concern for human rights and citizenship.

9. Teaching and learning strategies

Education strategies

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Case study strategy
- Inductive teaching strategy
- Concept mapping strategy
- Practical field training strategy
- Self-learning strategy
- E-learning strategy

Learning strategies

- Study strategy
- Conclusion strategy
- Spaced practice strategy
- Strategy for switching between ideas
- Examples strategy

10. Evaluation methods

Preparing reports, class assignments, practical laboratory tests, daily oral and written theoretical exams, semi-semester and quarterly, graduation research.

11. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements /Skills (If applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor		۳				۳
Assistant Professor		۴				۴
Lecturer		۹				۹
Assistant lecturer		۲۰				۲۰

Professional Development
Mentoring new faculty members
- Organizing weekly workshops and presentations to enhance faculty competencies in delivering lectures, presenting scientific research, and mastering effective communication skills with students and colleagues. - Encouraging active participation in continuing education programs, academic seminars, and specialized training programs to stay updated with the latest advancements in the pharmaceutical field. - Providing necessary support for participation in international scientific conferences, community awareness programs, and initiatives that contribute to the development of pharmaceutical practice and community service.
Professional development of faculty members

- Professional Development Programs:
- The college mandates active faculty participation in continuing education activities (workshops, seminars, conferences) as a key requirement for career advancement, ensuring continuous academic and professional growth.
- Scientific and Community Initiatives:
- Organizing and managing the college's annual international conference.
- Collaborating with healthcare institutions to design training programs aligned with pharmaceutical practice needs.
- Launching free awareness campaigns on critical health issues (e.g., addiction, chronic diseases, and developmental disorders).
- Strategic Partnerships:
- Strengthening collaboration with healthcare sectors to align educational outcomes with pharmaceutical labor market demands.

12. Acceptance Criterion

Admission is centralized by the Ministry of Higher Education and Scientific Research, based on the student's grades in the sixth preparatory grade.

There are multiple admission channels, including general admission, the distinguished student's channel, the martyrs' channel, the parallel channel, foreign students, as well as direct admission channels such as the elite channel and top students in vocational institutes.

13. The most important sources of information about the program

- College of Pharmacy Guide - Al-Ameed University
- Website of the College of Pharmacy - Al-Ameed University (in Arabic and English)
- Website of Al-Ameed University
- Website of the Ministry of Higher Education and Scientific Research
- Social Media Page of the College of Pharmacy - Al-Ameed University
- Announcements posted in the college corridors

Curriculum map outlining how different courses within a program are built upon each other to achieve the college mission and intended outcomes

		Required program Learning outcomes																					
Year/ Level	Course Name	Knowledge								Skills							Ethics						
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7
First year/ First semester	Biology	/								/							/						
	Principles of Pharmacy Practice	/				/	/		/	/		/		/		/	/	/	/	/			
	Analytical Chemistry	/								/							/						
	medical terminology						/				/		/			/		/	/	/	/		
	Mathematics and Biostatistics								/														
	Democracy and human rights																						/
First year/ Second semester	Human Anatomy	/								/							/						
	Pharmaceutical calculations	/				/	/		/	/		/		/		/	/	/	/	/	/		
	Medical Physics	/							/	/							/						
	Organic Chemistry I	/	/							/							/						
	Histology	/								/							/						
	Computer Sciences II														/		/						

Curriculum map outlining how different courses within a program are built upon each other to achieve the college mission and intended outcomes

		Required program Learning outcomes																						
Year/ Level	Course Name	Knowledge								Skills							Ethics							
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7	
Second year/ First semester	Organic Chemistry II	/	/							/							/							
	Microbiology I	/								/							/							
	Physical Pharmacy I	/			/			/	/	/				/			/				/			
	Physiology I	/								/							/							
	Computer Sciences														/		/							
	Baath Party crimes on Iraq																					/		
Second year/ Second semester	Organic Chemistry III	/	/																					
	Microbiology II	/								/							/							
	Physical Pharmacy II	/			/			/	/	/				/			/				/			
	Physiology II	/								/							/							
	Pharmacognosy I	/						/		/							/							
	Computer Sciences														/		/							
	Arabic language										/	/						/						

Curriculum map outlining how different courses within a program are built upon each other to achieve the college mission and intended outcomes

		Required program Learning outcomes																						
Year/ Level	Course Name	Knowledge								Skills							Ethics							
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7	
Third year/ First semester	Inorganic pharmaceutical chemistry	/	/							/	/						/	/						
	Pharmacognosy II	/						/		/							/							
	Pharmaceutical Technology I	/		/	/	/				/		/		/			/	/	/	/	/			
	Biochemistry I	/								/							/							
	Pathology	/								/							/							
Third year/ Second semester	Organic Pharmaceutical Chemistry I	/	/								/							/						
	Pharmacology I	/		/						/		/					/	/						
	Pharmaceutical Technology II	/		/	/	/				/		/		/			/	/	/	/	/			
	Biochemistry II	/								/							/							
	Pharmacognosy III	/						/		/							/							
	Pharmacy Ethics						/				/		/				/		/		/			

Curriculum map outlining how different courses within a program are built upon each other to achieve the college mission and intended outcomes

		Required program Learning outcomes																					
Year/ Level	Course Name	Knowledge								Skills							Ethics						
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7
Fourth year/ First semester	Pharmacology II	/		/						/		/							/				
	Organic Pharmaceutical Chemistry II	/	/							/	/								/	/			
	Clinical Pharmacy I						/				/	/	/			/	/	/	/	/	/		
	Biopharmaceutics	/	/		/	/				/		/		/			/	/	/	/	/		
	Public Health						/				/	/	/			/	/	/	/	/	/		
	Pharmacology III	/		/								/								/			
Fourth year/ Second semester	Organic Pharmaceutical Chemistry III	/	/							/	/								/	/			
	Clinical Pharmacy II						/				/	/	/			/	/	/	/	/	/		
	General Toxicology	/		/						/									/				
	Industrial Pharmacy I	/			/	/						/		/			/	/	/	/	/		
	Communication Skills						/				/	/	/			/	/	/	/	/	/		

Curriculum map outlining how different courses within a program are built upon each other to achieve the college mission and intended outcomes

		Required program Learning outcomes																					
Year/ Level	Course Name	Knowledge								Skills							Ethics						
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7
Fifth year/ First semester	Organic Pharmaceutical Chemistry IV	/	/							/	/						/	/					
	Industrial Pharmacy II	/			/	/				/		/		/			/	/	/	/	/		
	Applied Therapeutics I	/					/				/	/	/			/	/	/	/	/	/		
	Clinical chemistry	/																					
	Clinical laboratory training	/																					
	Clinical toxicology	/								/							/						
	Graduation Project						/				/	/	/	/		/	/	/	/	/	/		
	Pharmacoeconomics						/				/	/	/			/	/	/	/	/	/		
Fifth year/ Second semester	Applied Therapeutics II	/					/				/	/	/			/	/	/	/	/	/		
	Therapeutic Drug Monitoring						/				/	/	/			/	/	/	/	/	/		
	Advanced Pharmaceutical Analysis	/	/							/						/	/				/		
	Hospital Training						/				/	/	/			/	/	/	/	/	/		
	Dosage Form Design	/			/	/		/		/		/		/		/	/	/	/	/	/		
	Pharmaceutical Biotechnology	/								/							/						

A curriculum map outlining foundational science courses with their corresponding student learning outcomes categorized by area

		Program Learning outcomes																						
Area	Course Name	Knowledge								Skills							Ethics							
		A1	A2	A3	A4	A5	A6	A7	A8	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	C6	C7	
Pharmacology and toxicology sciences	Medical Terminology						/				/		/			/		/	/	/	/			
	Physiology I	/								/							/							
	Physiology II	/								/							/							
	Pharmacology I	/		/						/		/					/	/						
	Pharmacology II	/		/						/		/							/					
	Pharmacology III	/		/								/								/				
	Toxicology	/		/						/									/					
	Clinical Toxicology	/								/							/							
Pharmacognosy and medicinal plant sciences	Pharmacognosy I	/						/		/							/							
	Pharmacognosy II	/						/		/							/							
	Pharmacognosy II	/						/		/							/							
	Human Biology	/								/							/							

Clinical laboratory sciences	Mathematics and Biostatistics							/														
	Computer science												/		/							
	Human Anatomy	/							/						/							
	Histology	/							/						/							
	Medical Physics	/						/	/						/							
	Democracy and human rights																				/	
	Microbiology I	/							/						/							
	Microbiology II	/							/						/							
	Biochemistry I	/							/						/							
	Biochemistry II	/							/						/							
	Pathophysiology	/							/						/							
	Clinical biochemistry	/																				
	Clinical Laboratory Training	/																				
	Principles of Pharmacy Practice	/				/	/		/	/		/		/		/	/	/	/	/		
	Pharmaceutical Calculations	/				/	/		/	/		/		/		/	/	/	/	/		
	Physical pharmacy I	/			/			/	/	/			/		/					/		
	Physical pharmacy II	/			/			/	/	/			/		/					/		

Pharmaceutical sciences	Pharmaceutical Technology I	/		/	/	/				/		/		/			/	/	/	/	/		
	Pharmaceutical Technology II	/		/	/	/				/		/		/			/	/	/	/	/		
	Industrial Pharmacy I	/			/	/						/		/			/	/	/	/	/		
	Industrial Pharmacy II	/			/	/				/		/		/			/	/	/	/	/		
	Biopharmaceutics	/	/		/	/				/		/		/			/	/	/	/	/		
	Pharmaceutical Biotechnology	/								/							/						
	Dosage form Design	/			/	/		/		/		/		/		/	/	/	/	/	/		
Clinical Pharmacy	Clinical pharmacy I						/				/	/	/			/	/	/	/	/	/		
	Clinical pharmacy II						/				/	/	/			/	/	/	/	/	/		
	Applied Therapeutic I	/					/				/	/	/			/	/	/	/	/	/		
	Applied Therapeutic II	/					/				/	/	/			/	/	/	/	/	/		
	Pharmaceutical economic						/				/	/	/			/	/	/	/	/	/		
	Public health						/				/	/	/			/	/	/	/	/	/		
	Communication skills						/				/	/	/			/	/	/	/	/	/		
	Therapeutic Drug Monitoring						/				/	/	/			/	/	/	/	/	/		
	Hospital Training						/				/	/	/			/	/	/	/	/	/		
	Analytical Chemistry	/								/							/						
	Organic chemistry I	/	/							/							/						

Pharmaceutical Chemistry	Organic chemistry II	/	/						/							/							
	Organic chemistry III	/	/																				
	Inorganic Pharmaceutical Chemistry	/	/						/	/						/	/						
	Organic Pharmaceutical Chemistry I	/	/							/							/						
	Organic Pharmaceutical Chemistry II	/	/						/	/								/	/				
	Organic Pharmaceutical Chemistry III	/	/						/	/								/	/				
	Organic Pharmaceutical Chemistry IV	/	/						/	/						/	/						
	Advanced pharmaceutical analysis	/	/						/						/	/				/			

Course Description

1. Course Name
Human biology
2. Course Code
101 CIHb
3. Semester/Year
1st Class, 1st Semester
4. Date this description was prepared
9-02-2024
5. Available attendance forms
Attendance study
6. Number of academic hours (total) / number of units (total)
45 hoursTheory and Laboratory
7. Name of course coordinator(s):
8. Course objectives
This course aims to provide students with a comprehensive understanding of the composition of the human body, including cell structures, tissues, bones, the skeletal system, joints, muscles, and the basics of nutrition. It also explores the anatomy and functions of the major body systems and introduces fundamental concepts in human genetics. By the end of the course, students will be able to describe the structural organization of the human body, explain the function of its systems, and demonstrate knowledge of key genetic principles such as Mendelian inheritance, chromosome division, and essential terms including allele, locus, and heterozygous.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations	Biology	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٢	• 3 • ٢		Cell Tissues, bone and cartilages	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٣	• ٣		Tissues, bone and cartilages	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical

	• ٢	and tests and the ability to deduce the results and their effects from the test.			examinations, semi-semester and semester -Conduct laboratory experiments
٤	• ٣ • ٢	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	Nervous system (central & peripheral)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٥	• ٣ • ٢		Nutrition	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٦	• ٣ • ٢	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	Digestive system (Mouth, Esophagus, Stomach)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٧	• ٣ • ٢	- Instilling moral values for proper dealing with patients Transferable general and qualifying	Digestive system (intestine)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

٨	• ٣ • ٢	skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	Excretory system & respiration	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٩	• ٣ • ٢		Human genetics (chromosomes & semi-lethal genes)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٠	• ٣ • ٢		Skin	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	• ٣ • ٢		Circulatory system	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٢	• ٣ • ٢		Immunity (Inflammation, immunity & the blood , immunity to disease) •	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

					laboratory experiments
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc					
- Practical exam 20 - The midterm exam is 20 marks - The final exam 60 marks					
12. Learning and teaching resources					
Reference text		: Johnks and Inglis (eds.), Text Book of Human Biology, latest edition			
Main references (sources)		Textbook by Michael Windelspecht and Sylvia Mader latest edition			
Recommended supporting books and references (scientific journals, reports)					
references , websites		https://www.mtu.edu/biological/undergraduate/human-biology/what/			

Course Description

١. Course Name
Principles of Pharmacy Practice
٢. Course Code
102 PPpp
3. Semester/Year
First semester/ first year
4. Date this description was prepared
2/9/2024
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name: Ass.Prof. Dr. Abdullah Hameed Maad
Email: dr.ph.abdullah.maad@gmail.com
٨. Course objectives
Involves brief information about old pharmacy. It teaches kinds of numbers, abbreviations that are commonly used in prescriptions and their meanings. In this course the students will understand the components of typical prescription, the different unit systems and the relation between these systems. Students will also be familiar with the methods and tools of measuring weights and volumes, and how to calculate doses on different bases and know how to reduce or enlarge formulas; they will be able to describe values in percentage and ratio strength.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	٢	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Understand the components of typical	Some fundamentals of measurements and calculations	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	٢	prescription, the different unit systems. 4- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	Some fundamentals of measurements and calculations (cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	٢		Interpretation of prescription or medication orders	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٤	٢	Acquiring skills	Interpretation of prescription or medication orders(cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

٥	٢	- Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug.	The metric system	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٦	٢	- Acquire skill in writing scientific reports	The metric system(cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٧	٢	Emotional and value outcomes	Calculation of doses	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٨	٢	- Thinking skills through translating, analysing, evaluating and extracting ideas	Calculation of doses(cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٩	٢	- Instilling moral values for proper dealing with patients	Reducing and enlarging	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٠	٢	Transferable general and qualifying skills (other skills related to employability and personal development).	Reducing and enlarging (cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١١	٢	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	Density, specific gravity and specific volume	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٢	٢	- Acquire skill in	Density, specific gravity and specific volume(cont)	the blackboard PowerPoint slides	Oral and written theoretical exams, semi-

		writing reports - Acquiring driving skills - Acquiring skill in dealing		E-Learning	semester and semester
١٣	٢		Percentage and ratio strength calculation	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	٢		Percentage and ratio strength calculation (cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥	٢		Percentage and ratio strength calculation (cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Daily exams and classroom activities 5 marks
- The mid-term exam is 25 marks
- Final exam: 70 marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	Pharmaceutical Calculation by Stoklosa
Main references (sources)	Pharmaceutical Calculations 13th Edition Howard C. Ansel, PhD
Recommended supporting books and references (scientific (...), journals, reports	
references , websites	USP

Course Description

1. Course Name	
Analytical Chemistry	
2. Course Code	
103 PcAc	
3. Semester/Year	
1st Class, 1st Semester	
4. Date this description was prepared	
9/2/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name :	
Email :-	
8. Course objectives	
Objectives of the study subject	To provide students with a sound theoretical back ground in chemical principles that is essential to practice chemical analysis. It enables students to understand the importance of judging the accuracy and precision of experimental data and techniques of quantitative analysis, and also to show that theory frequently serves as a useful guide to the solution of analytical problems.
9. Teaching and learning strategies	

Education strategies Learning strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy - Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy
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10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the	• Review of elementary concept important to analytical chemistry: Strong and weak electrolytes; important weight and concentration units. • Demonstration of some laboratory equipments.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3		• The evaluation of analytical data	the blackboard	Reports, assignments, oral and

	2	drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	Definition of terms. Separation and identification of group 1 cations (individual test).	PowerPoint slides E-Learning	written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	3 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug.	- An introduction to gravimetric analysis: Statistical analysis of data; rejection of data; precipitation methods; gravimetric factor. - Analysis of group 1 cations mixture.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	3 2	-Acquire skill in writing scientific reports	The scope of applications of gravimetric analysis: Inorganic precipitating agents; organic precipitating agents. Preparation and standardization of an acid.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		Emotional and value outcomes			
5	• 3 • 2	- Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• An introduction to volumetric methods of analysis Determination of the percentage of acetic acid.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 3 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• Volumetric calculations; acid-base equilibria. Analysis of sodium carbonate	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	• pH calculations. • Analysis of sodium hydroxide mixture	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 3	- Acquire skill in writing reports - Acquiring	• Buffer solutions: Theory of neutralization titrations of simple system. • Determination of chloride by the	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

	2	driving skills - Acquiring skill in dealing	Mohr method.		and semester -Conduct laboratory experiments
9	3 2		- Theory of neutralization titrations of complex system - Determination of chloride by the Volhard method.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	3 2		- Precipitation titrations. - Preparation and standardization of 0.1N KMnO_4.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	3 2		- Calculation of pH in complex system; Volumetric methods based on complex system - Determination of ferrous form of iron in Mohr's salt	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	3		- Equilibria in oxidation-reduction system - Determination of	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical

	• 2		total hardness in tap water.	E-Learning	examinations, semi-semester and semester -Conduct laboratory experiments
13	• 3 • 2		• theory of oxidation-reduction titrations • Gravimetric determination of Nickel.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2		• Spectrophotometric analysis: An introduction to optical methods of analysis • determination of Cu.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		• Methods based on absorption of radiation • determination of Co.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	Fundamentals of Analytical Chemistry by Stook and West Hand book for practical organic chemistry
Main references (sources)	- Modern of Analytical Chemistry
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Course Description

1. Course Name	
Medical terminology	
2. Course Code	
104	
3. Semester/Year	
1 st Class, 1st Semester	
4. Date this description was prepared	
10/9/2023	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
15 hours Theory (1 unit/hr)	
7. Name of course coordinator(s):	
Name : Prod. Ihsan Salah Rabea Email: Ihsans.mohammed@uokufa.edu.iq	
8. Course objectives	
Objectives of the study subject	In this course, students will learn to pronounce, spell, and define medical and pharmaceutical terms used in health care settings. It will use a word-building strategy that helps them discover connections and relationships among word roots, prefixes, and suffixes. They will learn the meaning of each part of a complex medical and pharmaceutical term and be able to put the parts together and define the term.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	1	Cognitive Outputs: 1. Information about word roots 2. More details about word roots, suffixes and prefixes related to pharmaceutical sciences (pharmacognosy, clinical pharmacy, pharmaceuticals, etc) 3. Describe the important medical term for abnormal condition 4. Describe the important medical term	Basic word roots	the blackboard PowerPoint slides E-Learning .	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	1		Word roots, suffixes and prefixes	the blackboard PowerPoint slides E-Learning .	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
3	1		• Basic anatomical terms and abnormal conditions	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
4	1		• The genitals and urinary tract	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

		renal and reproductive system			semi-semester and semester
5	1	5. Describe the important medical term for GIT	The genitals and urinary tract.	the blackboard PowerPoint slides E-Learning .	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
6	1	6. Describe the important medical term used in cardiovascular system	The heart and cardiovascular system	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
7	1	7. Describe the important medical term in disease and treatment	Symptoms, diagnoses, treatments, communication qualifiers, and statistics	the blackboard PowerPoint slides E-Learning Conducting	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
8	1	8. Describe the important medical term for Growth and development	Growth and development	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
9	1	9. Describe the	Gynaecology	the blackboard PowerPoint slides E-Learning .	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
10	1		The eye	the blackboard PowerPoint slides	Reports, assignments, oral and

		important medical term in Gynaecology , pregnancy, and childbirth		E-Learning	written theoretical examinations, semi-semester and semester
11	1	10. Describe the important medical term for eye condition and anatomy	The nervous system.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
12	1	11. Describe the important medical term in The nervous system and behavioral disorders	Blood and immunity	the blackboard PowerPoint slides E-Learning .	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
13	1	12. Describe the important medical term in Blood and immunity	Bone and joint	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
14	1	13. Describe the important medical term for Bone and joint	Blood and immunity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
15	1		The respiratory tract	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

		14. Describe the important medical term in Blood and immunity			
		15. Describe the important medical term in			

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- The midterm exam is 30 marks
- The final exam 70 marks

12. Learning and teaching resources

methodology, if textbooks Required any	Edward CC, (Ed.); A Short course in Medical Terminology; Latest edition; Lipincott Williams and Wilkins.
Main references (sources)	- Text book
Recommended supporting books and references (scientific journals, reports)	• Barbara A. Gyls, Regina M. Masters. Medical terminology simplified : a programmed learning approach by body systems; Latest edition. • Barbara Janson Cohen, Ann DePetrus. Medical terminology : an illustrated guide; Latest edition • Pharmacy times (journal) • Us pharmacist (journal)
references , websites	Ministry of higher education's electronic library Reliable Internet sites like NCBI, PUB. Med.gov

Description Course

١. Course Name	
Mathematics and Biostatistics	
٢. Course Code	
105 CIMb	
3. Semester/Year	
First semester / First year	
4. Date this description was prepared	
2024/9/2	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours	
7. Name of course coordinator(s):	
Name: Email:	
٨. Course objectives	
Objectives of the study subject	1- Gives students the ability to deal with the concept of Mathematics and Statistic, 2- Emphasizes the knowledge and skill required to efficiently discharge the duties and responsibilities of the pharmacist. 3-The course deals with the concept of basic Mathematics and application of Biostatistics in the medical field. 4- Upon completion of the course students will be able to understand the applications of statistics in medical field.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	3	Coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs.	Mathematics: General concepts	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	3	displacement function; slope and equation for lines.	equation for lines	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	3	Limits and continuity: Limits; theorem of limits;	Limits and continuity:	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٤	3	Limit involving infinity; continuity; continuity conditions.	Limit involving infinity;	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٥	3	Biostatistics: General	Biostatistics:	the blackboard	Oral and written

		concepts of statistics; statistical methods; .		PowerPoint slides E-Learning	theoretical exams, semi- semester and semester
٦	3	Statistical theory; applied statistics; statistical operations	Biostatistics	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
٧	3	Properties of probability; Set theory and set notation (basic notation)	Probability concepts	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
٨	3	counting techniques- permutations and combinations; calculating the probability of an events;	counting techniques	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
٩	3	probability distribution of discrete variable; binomial distribution, Poisson distribution;	Poisson distribution;	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١٠	3	continues probability distribution and normal distribution,	Probability distribution	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١١	3	Mean of sample and mean of population; median; mode; measure of central tendency; review questions and exercises.	The concept of central tendency	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١٢	3	Derivatives: Line tangent and derivatives; differentiation rules;	Derivatives	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester

١٣	3	derivative of trigonometric function; practice exercises.	Derivative of trigonometric	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	3	Indefinite integrals; rules for indefinite integrals; integration formulas for basic trigonometric function; definite integrals; properties of definite integrals; practice exercises.	Integration	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥	3	Deviations and variation: Deviation; dispersion and variability; standard deviation and variance; coefficient of variations; standard error; correlation analysis.(regression model and sample regression equation); application of statistic in medical field; review questions and exercises.	Deviations and variation	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Daily exams 3 marks
- Daily preparation and classroom activities 2 marks
- The midterm exam is ٢5 marks
- The final exam is ٧٠ marks

12. Learning and teaching resources

Reference textbook	Introduction Statistics – seven edition-by Prem S. Mann Calculus-11 edition by Thomas-2005 Biostatistics (A Foundation for Analysis in the Health sciences) Nine edition- by Wayne W. Daniel-2005
External textbook	Introduction Statistics – seven edition-by Prem S. Mann Calculus-11 edition by Thomas-2005 Biostatistics (A Foundation for Analysis in the Health sciences) Nine edition- by Wayne W. Daniel-2005

Description Course

1. Course Name
Democracy and human rights
2. Course Code
UAHr 105
3. Semester/Year
First semester/ First year
4. Date this description was prepared
2/9/2025
5. Available attendance forms
Physical attendance
6. Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name: Lecturer. Ahmed Yaqub Ibrahim Email: ahmedyaa@alameed.edu.iq
8. Course objectives
- Identifying the development and historical origins of the concept of democracy and its types, and methods of diagnosing the reasons for the decline of its practice in the political systems of countries and how to solve it . - Identifying the components and characteristics of democracy and laying its correct foundations in the political systems of countries, in order to ensure that its citizens enjoy its outcomes and arm themselves with the force of law to defend the privileges emanating from it and build a free society that believes in its full and undiminished rights and the duties entrusted to it in order to protect the political system from decay and chaos . - Identify the most important relationship between democracy, human rights, and civil society institutions, through influence and influence among them, and what are the outcomes and results of these relationships, and how they contribute to building a democratic society in which the political system guarantees public rights and freedoms .

- Enabling individuals to participate effectively in choosing the form of government that achieves the foundations of coexistence, understanding, tolerance and respect among the people of one people with their various ideological, religious, linguistic and ethnic orientations .

9. Teaching and learning strategies

Education strategies

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Dialogue and discussion
- Self-learning strategy

Learning strategies

- Study strategy
- Conclusion strategy
- Strategy for switching between ideas
- Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2		The concept and history of democracy	the blackboard PowerPoint	Discussion
2	2		Characteristics of the democratic system and its components	the blackboard PowerPoint	crime sections
3	2		The Constitution	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester

4	2		Constitution and democracy	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
5	2		The elections	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
6	2		Institutions of civil society	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
7	3		The relationship between civil society institutions and democracy	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
8-9	2		Mid term		
10	2		The concept of human rights and its development	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
11	2		Human rights in international constitutions and the Iraqi constitution	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
12	2		The relationship between human rights and democracy	the blackboard PowerPoint	Oral and written theoretical exams, semi-

					semester and semester
13	2		Genocide crimes	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
14	2		Guarantees of public freedoms and rights	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
15			Good governance Contemporary democracy		

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Daily preparation and classroom activities 5 marks
- The midterm exam is 25 marks
- The final exam is 70 marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	
Main references (sources)	• Dr. Ghassan Karim Majthab and Dr. Amjad Zein Al-Abidin Tumaa, <u>Human Rights and Democracy</u>, 2018. • Zuwaina Al-Walid, <u>The Crime of Genocide in Light of the Jurisprudence of the International Criminal Court for Rwanda</u>, unpublished master's thesis, (University of Algiers, Faculty of Law, Ben Aknoun, 2013). • David Beetham and Kevin Boyle, <u>Introduction to Democracy: Free and Fair Elections</u>, translated by: Ghareeb Awadh, (Bahrain, Fradis Publishing and Distribution House,

	2007). • <u>Constitution of Iraq of 2005</u> .
Recommended supporting books and references (scientific journals, reports,...)	Mohamed Gharbi, <u>Democracy and Good Governance: Challenges for Political Participation and Achieving Development</u> , Special Issue, (Algeria, Journal of Politics and Law Notebooks, April 2011) .
references , websites	

Course Description

1. Course Name
Human Anatomy
2. Course Code
108 CIHa
3. Semester/Year
Second semester/First year
4. Date this description was prepared
2024/9/2
5. Available attendance forms
Physical attendance
6. Number of academic hours (total) / number of units (total)
Hours 30
7. Name of course coordinator(s):
Name: Ahmed ali kairalla Email: ahmed.1980582@gmail.com
8. Course objectives
At the end of this Course , Students are expected to learn 1- 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 2- The types of general tissue (epithelial , connective, muscular , nervous,dipose, cartilage, blood) and to identify the structure of each fabric and wherever they are located and the designation and discrimination elements and describe the molecular

3- definition (cartilage and bone) tissue and a description of their infrastructure and cellular outside Phones and Aldziaih described ossification described the bone tissue growth and to explain his job and describe and remember the bones of the axial structure (intracranial and spine and chest structure) and the bones of the parties and basic parameters for each bone and the distinction between the types of joints and function.

Education strategies

Learning strategies

Graduates must be attain the capacity to:

1- Differentiate the types of general tissue (epithelial, connective, muscular, nervous, adipose, cartilage, blood).

2- Examine a histological slide with different magnifications – Draw a labeled diagrams for types of general tissue type.

3- Graduates must have the ability to: – Conduct a scientific report. . – be a part in scientific discussion

4- The student in Pharmacy will be able to understand the human body in earlier time in his/ her study in the faculty, so he/she will be able to understand the scientific contents of other courses.

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Cognitive outputs The student - should be able to know the causes,	(cell of Installation(review Cell	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical

		symptoms, and diagnosis of various diseases		E-Learning	examinations, semi-semester and semester
2	2	Determine the appropriate medication for each disease condition	-	Introduction ingeneral anatomy include: kinds of anatomy, Anatomical description, Anatomical terms ,Basic Structures	the blackboard PowerPoint slides E-Learning Oral and written theoretical exams, semi-semester and semester
3	2	Know everything related to the effects of therapeutic and offending drugs and contraindications for use	-	Skeleton bones and Joints	the blackboard PowerPoint slides E-Learning Oral and written theoretical exams, semi-semester and semester
4	2	How to treat the patient and educate him about his health	-	Epithelial tissue& Circulatory system: Location of vascular system (Heart, Arteries, Veins)	the blackboard PowerPoint slides E-Learning Oral and written theoretical exams, semi-semester and semester
5	2	Acquiring skills How to conduct and give qualitative seminars and lectures	-	Glandular Epithelium &Endocrine system: -location of the pituitary gland - location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands	the blackboard PowerPoint slides E-Learning Oral and written theoretical exams, semi-semester and semester
6	2	Skill in drug education for patients	-	Digestive system: - location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus &	the blackboard PowerPoint slides E-Learning Oral and written theoretical exams, semi-semester and semester

		The skill of extracting the required information from approved sources -	Stomach) -Small intestine, Large intestine, Rectum & Anus.		
7	2	Emotional and value outcomes Thinking skills through translating, analysing, evaluating and extracting ideas -	Digestive system: Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder).	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	2	Implanting moral values for proper dealing with patients -	Respiratory system: -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles). - Respiratory portion (Lung)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
9	2	Transferable general and qualifying skills (other skills related to employability and personal development).	Nervous system: Central & Peripheral nervous system by location	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
10	2		Lymphoid tissue: location of the (Thymus gland, Spleen & Lymph nodes)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
11	2	Performing practical experiments -	Lymphoid nodule (MALT) & Tonsils	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
12	2	Acquire skill in using computers -	Nervous system: Central &	the blackboard	Oral and written

			Peripheral nervous system by location	PowerPoint slides E-Learning	theoretical exams, semi-semester and semester
13	2	Giving the student confidence by discussing the seminars - Gain skill in writing reports -	Male reproductive system: -location of the testes. - Excretory genital ducts -Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
14	2	Gain driving skill -	Female reproductive system: -location of ovary, Oviduct, Uterus & Vagina.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
15	2	Acquire skill in dealing -	Urinary system: - location of the (kidney & nephron) - location of the (Ureter, Bladder & Urethra).	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Daily exams 5 marks
- Daily preparation and classroom activities 5 marks
- The midterm exam is 30 marks
- The final exam is 60 marks

12. Learning and teaching resources

Required textbooks	- Lippincott Williams & Wilkins
Main references (sources)	- Clinical Anatomy by Regions (Richard S. Snell 8th ed. 2010).
Recommended supporting books and references (scientific journals, reports,...)	- Simon McGurk Junqueira, L (2005) Basic Histology Text and Atlas – 11th edition - Stevens A & Lowe, JS (1991). Histology. Gower Medical Publishing - Young, B & Heath, JW (2006). Wheater's Functional Histology — a Text and Colour Atlas 5th edn. London: Churchill Livingstone.
references , websites	- FDA

Course Description

١. Course Name
Pharmaceutical Calculation
٢. Course Code
109 PPhc
3. Semester/Year
Second semester/ first year
4. Date this description was prepared
2024/9/2
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours theory and 30 hours practices
7. Name of course coordinator(s):
Name : Ass.Prof. Dr. Abdullah Hameed Maad Email: dr.ph.abdullah.maad@gmail.com
٨. Course objectives
It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations of extemporaneous compounding, and biological parameters of drug substances. The course teaches calculations for dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	• 2 • 2	Cognitive outputs 1- How to prepare different dosage form. 2- Learning using different scientific techniques 3- Understand the advantage and disadvantage of different dosage form .	• Dilution pharmaceutical preparation • Demonstration of different glass wares and equipment's used in the field of pharmacy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	• 2 • 2	4- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	• Dilution of pharmaceutical preparation. • Pharmaceutical measurements	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	• 2 • 2		• Dilution of pharmaceutical preparation. (cont) • Pharmaceutical measurements	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٤	• 2 • 2	Acquiring skills - Preparing modern designs for drug	• Concentration of pharmaceutical Preparations • Volume measurements	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

٥	• 2 • 2	composition and preparation methods. -Understanding the stability and factor that effect on	• Concentration of pharmaceutical Preparations(cont) • Volume measurements	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٦	• 2 • 2	storage of different dosage form. -Acquire skill in writing scientific reports	• Isotonic solutions • Preparation of aromatic waters	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٧	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Isotonic solutions • Preparation of simple solutions	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٨	• 2 • 2	- Instilling moral values for proper dealing with patients	• Isotonic solutions(cont) • Preparation of simple solutions(cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٩	• 2 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• Electrolyte solutions • Reducing and enlarging prescription contents	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٠	• 2 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the	• Milliequivalents • Reducing and enlarging prescription contents	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١١	• 2 • 2	student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving	• Millimoles • Percentages in calculating prescription contents	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٢	• 2 • 2	skills - Acquiring skill in dealing	• Milliosmoles • Percentages in calculating prescription	the blackboard PowerPoint slides	Oral and written theoretical exams, semi-

			contents(cont)	E-Learning	semester and semester
١٣	• 2 • 2		• Constituted solutions • Stock solutions	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	• 2 • 2		• I.V admixtures • Dilution technique during dispensing technique	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥	• 2 • 2		• Flow rate Calculations. • Dilution technique during dispensing technique(cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc
- Practical exam 20 - The mid-term exam 20 marks - The final exam 60

12. Learning and teaching resources

Required textbooks (methodology, if any)	Pharmaceutical Calculations 13th Edition Howard C. Ansel, PhD
Main references (sources)	Pharmaceutical Calculations by Stoklosa
Recommended supporting books and references (scientific journals, (...),reports	
references , websites	BNF, BP and USP

Course Description

١. Course Name
Medical physics
٢. Course Code
110 CIMp
3. Semester/Year
Second semester/first year
4. Date this description was prepared
2024/9/2
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total
30 hours
7. Name of course coordinator(s):
Name: Email:
٨. Course objectives
Objectives: To provide students with the ability to deal with physics concepts, and confirms knowledge and experience. The skills necessary to efficiently perform the duties and responsibilities of a pharmacist. The course covers With the concept of basic physics and application of physics in medical field. When you finish of course students will be able to understand the physical terms and abbreviations used to describe Lecture and application in the medical field.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in	• The 2nd law of thermodynamics ;conservation of energy principle; reversible and irreversible process ;entropy and enthalpy ;internal energy ;adiabatic process ;the relation between pressure ,volume and temperature in adiabatic process; application of thermodynamics. • Explain how to plot graph and make laboratory report.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	• 2 • 2	writing reports - Acquiring driving skills - Acquiring skill in dealing	• Heat and energy; work and mechanical form of work; power, Boyles and Charles law;	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

			- practice exercises. - Optical Fiber Loss (bend) Measurement.		
۳	2 2		- Fundamental of physics: kinetic theory of gas; ideal gas and real gas; general law of gases; Claus equation and Vander Waales equation equilibrium and type of equilibrium. - Simple pendulum.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۴	2 2		- Compressibility factor, coefficient of volume expansion, elastic coefficient (bulk modulus) electromagnetic waves ;Maxwell equations ; Physics optics. - Spectral photometric	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۵	2 2		- The 2nd law of thermodynamics ;conservation of energy principle; reversible and irreversible process ;entropy and enthalpy ;internal energy ;adiabatic process. - Density of liquid.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۶	2 2		The relation between	the blackboard	Oral and written

			pressure, volume and temperature in adiabatic process; application of thermodynamics. The focal length of convex lens.	PowerPoint slides E-Learning	theoretical exams, semi-semester and semester
۷	2 2		- Heat and energy; work and mechanical form of work; power. - application computer in medical physics	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۸	2 2		- Boyles and Charles law; practice exercises. - Measurement of Viscosity of liquids.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۹	2 2		- Fundamental of physics: kinetic theory of gas; ideal gas and real gas. - Measuring surface tension (by capillary rise method and traveling microscope).	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۱۰	2 2		- General law of gases. - Measuring surface tension (differential height capillary method).	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
۱۱	2 2		- Clauses equation and Vander Waales equation equilibrium and type of equilibrium. - Decay curve and	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

			half-life.		
١٢	• 2 • 2		• Compressibility factor, coefficient of volume expansion • Boyle's Law.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٣	• 2 • 2		• Elastic coefficient (bulk modulus) • Speed of sound.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	• 2 • 2		• Electromagnetic waves; Maxwell equations; Physics optics. • Laser application for measurement of single slit.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥			Mid-term exams	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Laboratory: 15 marks
- Daily preparation and classroom activities 5 marks
- The mid-term exam is 30 marks
- Final exam: 50 marks

12. Learning and teaching resources

Reference textbook

Reference text: Physics for Biology and -
Medical Students, (Latest edition).

Course Description

1. Course Name
Organic Chemistry I
2. Course Code
111 Pc0c1
3. Semester/Year
1st Class, 2nd Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours Theory and Laboratory
7. Name of course coordinator(s):
Name:
Email :-
8. Course objectives
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 alkanes, alkenes and alkynes, in addition to the principles of stereochemistry and features of aromatic compounds.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using	• Introduction. • Determination of melting point (Known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3	the results of pharmaceutical analysis tests, discussing them, and using	• Alkanes • Determination of melting point (quiz and unknown).	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical

	• 2	them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.		E-Learning	examinations, semi-semester and semester -Conduct laboratory experiments
3	• 3 • 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	• methane. • Determination of boiling point (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 3 • 2	using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	• Alkenes I • Determination of boiling point (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

5	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Alkenes II • Elemental analysis (explanation of basic concepts).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 3 • 2	- Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	• Alkynes. • Elemental analysis (known quantity and quality sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers	• Dienes. • Solution and filtration techniques (explanation of basic concepts).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 3 • 2	- Giving the student confidence through discussing seminars - Acquire skill in writing	• Stereochemistry I • Re-crystallization (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

		reports - Acquiring driving skills - Acquiring skill in dealing			laboratory experiments
9	• 3 • 2		• Stereochemistry II • Re-crystallization (quiz and unknown sample) .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 3 • 2		• Alcohols • Extraction technique (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 3 • 2		• ethers. • Extraction technique (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	• 3 • 2		• Alkyl halides. • Distillation techniques (known samples).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

					and semester -Conduct laboratory experiments
13	• 3 • 2		• Cycloalkanes. • Distillation techniques (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2		• Cycloalkenes. • Sublimation technique (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		• Cycloalkynes. • Sublimation technique (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc	
- Practical exam 20 - The midterm exam is 20 marks - The final exam 60 marks	
12. Learning and teaching resources	
methodology, if textbooks Required any	Organic Chemistry by Robert T. Morrison and Robert N. Boyd . Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000.
Main references (sources)	Organic Chemistry by Robert T. Morrison and Robert N. Boyd . - Organic Chemistry by McCurry; 5th ed.
Recommended supporting books and references (scientific journals, reports)	Thomason learning; CA,USA; 2000
references , websites	

Course Description

1. Course Name
Histology
2. Course Code
112 ClHi
3. Semester/Year
1st Class, 2 nd Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical Attendance
6. Number of academic hours (total) / number of units (total)
45 hours Theory and Laboratory
7. Name of course coordinator(s):
Name : Ghufraan Lutfi Ismail
8. Course objectives
To study the histological structure of the human body. It is meant primarily to give the student a foundation for advanced study in health care, physiology, pathology, and other fields related to health and fitness. At the end of the course the student should be familiar with the histological description of the human body.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of	Circulatory system: Structure of the vascular system (Heart wall, Arteries, Veins & Capillaries)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3 • 2	pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific	Lymphoid tissue: Structure of the lymphatic system (Lymphatic capillary).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	• 3	reports on the results of scientific	Structure & function of the	the blackboard PowerPoint	Reports, assignments, oral and

	• ۲	examinations and tests and the ability to deduce the results and their effects from the test.	(Thymus gland, Spleen & Lymph nodes) Lymphoid nodule (MALT) & Tonsils	slides E-Learning	written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۴	• ۳ • ۲	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	Nervous system: Central & Peripheral nervous system	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۵	• ۳ • ۲		Respiratory system: -Conducting portion (Nose, Nasopharynx, Trachea Bronchus & Bronchioles).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۶	• ۳ • ۲	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	-Respiratory portion (Lung)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۷	• ۳ • ۲	- Instilling moral values for proper dealing with	Digestive system: -Digestive steps. -General structure of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus &	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

		patients	Stomach)		and semester -Conduct laboratory experiments
٨	• ٣ • ٢	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers	Digestive system: Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder0.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٩	• ٣ • ٢	- Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	Endocrine system: -General structure of the pituitary gland -Histophysiologies of the pituitary gland.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٠	• ٣ • ٢		Endocrine system: -General structure of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	• ٣ • ٢		Male reproductive system: -General structure of the testes. -Stages of spermatogenesis. Male reproductive system: -Excretory genital	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

			ducts-Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands)		laboratory experiments
۱۲	• ۳ • ۲		• Urinary system: • -Structure & Function of the (kidney & nephron) • -Histology of the nephron (filtration, absorption & excretion). • - Structure of the (Ureter, Bladder & Urethra). •	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 3 • 2		• The skin • Thick & Thin skin	the blackboard PowerPoint slides E-Learning	assignments, , oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

۱۱. Course evaluation

Distribution of the grade out of ۱۰۰ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam ۳۰
- The midterm exam is ۳۰ marks
- The final exam 60 marks

12. Learning and teaching resources

Main references (sources)

*Junqueira's Basic Histology
Text And Atlas (Latest Edition)*

Recommended supporting books and references (scientific journals, reports)	<i>Textbook of Histology.. By Leeson LeesonPaparo (latest edition)</i>
references , websites	<u>Atlas of Human Histology</u> A Guide to Microscopic Structure of Cells, Tissues and Organs Robert L. Sorenson T. Clark Brelje 3rd Edition Copyright © 2004, 2008, 2014.

Course Description

١. Course Name
Computer I
٢. Course Code

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	-	Cognitive outputs Knowing what the Windows system is, its importance, and its role in providing an ideal study environment for the student and the teacher at the same time	- The basics of the system and its main tools	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	-	Acquiring skills How to deal with the details of the exam paper that is designed using the Remark program and avoid errors that affect the way the program reads the student's answer, which is reflected in the student's test result.	- A detailed explanation of the desktop and taskbar in the Windows 2011 operating system	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	-		- Basic system settings and how to change them according to the purpose	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٤	-		Study the properties of the calculator related to the existing system	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٥	- 2		- Discussing common mistakes and ways to deal with them	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٦	- 2		-	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٧	- 2	How to deal with software tools and menus	Pros and cons of the system	the blackboard PowerPoint	Oral and written theoretical

		The student should be familiar with how to open and use the program, how to access it in the calculator, and know the most important uses of these programs for them as students.		slides E-Learning	exams, semi-semester and semester
٨	- 2		Windows 2011 operating system interface	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٩	- 2		A detailed explanation of the desktop and taskbar in the Windows 2011 operating system	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٠	- 2		Introduction to Word 2010	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١١	- 2		Explaining how to use the tools in Word	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٢	- 2		The different fields in which the Word program is included	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٣	- 2		Detailed explanation of the program menus	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	- 2		Link the program to other programs	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١٥	- 2		Software updates	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١١. Course evaluation					
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc					
- Daily exams 30 marks - Daily preparation and classroom activities 10 marks - The final exam is 60 marks					
12. Learning and teaching resources					
Required textbooks (methodology, if (any					
Main references (sources)			- Windows 2011 - Microsoft office 2010		
Recommended supporting books and references (scientific journals, (... ,reports					
references , websites			https://www.microsoft.com/software-download/windows11		

Course Description

1. Course Name
Organic Chemistry II
2. Course Code
216 PcOc2
3. Semester/Year
2nd Class, 1st Semester
4. Date this description was prepared

2/9/2024

5. Available attendance forms

Physical attendance

Number of academic hours (total) / number of units (total)

45 hours Theory and Laboratory

7. Name of course coordinator(s):

Name : _____

Email:

8. Course objectives

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 organic halides, carboxylic acids, aldehydes, ketones and amines, in addition to the principles and application of stereochemistry on these compounds.

9. Teaching and learning strategies

Education strategies

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Case study strategy
- Inductive teaching strategy
- Concept mapping strategy
- Practical field training strategy
- Self-learning strategy
- E-learning strategy
- Study strategy

Learning strategies

	- Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy
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10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of	• Aromatic Hydrocarbons benzene • Solubility Classification (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3 • 2	3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of	• Electrophilic aromatic • Solubility Classification (tutorial and quiz)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		scientific examinations and tests and the ability to deduce the results and their effects from the test.			
3	• 3 • 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods	• electrophilic aromatic substitution, arenas and their derivatives • Solubility Classification (unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 3 • 2	- Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	• Carboxylic acids: propertie. • Identification of alcohols (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Carboxylic acids:reaction • Identification of alcohols (tutorial and quiz) .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 3	- Instilling	• Functional derivatives of carboxylic acids	the blackboard PowerPoint	Reports, assignments, oral and written

	• 2	moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	• Identification of alcohols Elemental analysis (unknown)	slides E-Learning	theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers	• Amines I • Identification of phenol (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 3 • 2	- Giving the student confidence through discussing seminars - Acquire skill in writing reports	• Amines II. • Identification of phenol (tutorial and quiz)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3 • 2	- Acquiring driving skills - Acquiring skill in dealing	• Aldehydes. • Identification of phenol (unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

10	• 3 • 2		• ketones. • Identification of aldehyde and ketone (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
11	• 3 • 2		• aldol condensation • Identification of aldehyde and ketone (tutorial and quiz)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
12	• 3 • 2		• Claisen condensation. • Identification of aldehyde and ketone (unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
13	• 3 • 2		• Classification. • Identification of organic compound (general, known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct

					laboratory experiments
14	• 3 • 2		• reactions and properties. • Identification of organic compound (general, unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		• Phenols. • Identification of organic compound (general quiz)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any

Organic Chemistry by Robert T. Morrison and Robert N. Boyd

Organic Chemistry by McCurry; 5th ed. Thomson learning; CA,USA; 2000.

Main references (sources)	Organic Chemistry by Robert T. Morrison and Robert N. Boyd - Organic Chemistry by McCurry; 5th ed.
Recommended supporting books and references (scientific journals, reports)	Thomason learning; CA,USA; 2000
references , websites	

Course description

1. Course Name:
Microbiology I
2. Course Code
217 CIMm
3. Semester/Year:

Second semester/second year
4. Date this description was prepared:
2/9/2024
5. Available attendance forms:
Presence
6. Number of academic hours (total) / number of units (total):
45 hours
7. Name of the course leader (if more than one name is mentioned):
Name: Email:
8. Course objectives
The primary goal of studying medical microbiology is to provide basic information about medical bacteriology, which includes specialized knowledge about bacteria, including the structure of bacteria and their drug sensitivity, bacterial resistance to antibiotics, components of bacterial cells, bacterial diseases and how diseases arise, natural inhabitants of bacteria, and also includes... Study of the bacterial system, giving an example for each group of pathogenic bacteria, and studying these groups in terms of diseases, types of diseases that cause infection, and types. Study of food products, methods of transporting them, methods, methods of treating them, and diagnosing them.
9. Teaching and learning strategies:

-Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Conceptual mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy -Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Strategy for providing examples	Education strategies Education strategies
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10. Course structure:

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Hours	Week
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	The blackboard PowerPoint slides E-Learning	Introduction to Bacterology and classification, Morphology, Cell structures	Cognitive outputs The student should be able to know the causes, symptoms, and diagnosis of parasitic, viral, and immunological diseases - Determine the appropriate medication for each disease condition	3	1
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Chemotherapy sensitivity test and Genetic replication in microorganisms,	- Knowledge of the methods of transmission of parasitic and viral diseases - Knowledge of ways to prevent parasitic and viral diseases Acquiring skills	3	2

Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides	Pathogenicity and pathogenesis, Normal flora	- How to conduct and deliver qualitative seminars and lectures - Skill in drug education for patients - The skill of extracting the required information from approved sources	3	3
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Gram Positive cocci: Staphylococcus spp Streptococcus spp	Emotional and value outcomes -Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	3	4
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Gram positive Bacilli: Spore forming bacteria: Clostridium spp Bacillus spp	transferable general and qualifying skills (other skills related to employability and personal development).	3	5
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Gram negative cocci: Neisseria meningitidis Neisseria gonorrhoeae	-Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills	3	6
Reports, assignments, oral and written theoretical examinations, semi-	the blackboard PowerPoint slides E-Learning	Gram negative bacilli: Homophiles spp Corynebacterium spp		3	7

semester and semester					
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Zoonotic Bacteria: Brucilla spp, Mycobacterium tuberculosis		3	8
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Enterobacteriaceae: Introduction, Pseudomonas Bordetella		3	9
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Helicobacter pylori Escherchia coli Klibeseilla		3	10
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Salmonella Shigella Enerobacteria		3	11

Reports, assignments , oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	<i>Mycobacterium leprae</i> Anthrax		3	12
Reports, assignments , oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Anaerobic bacteria		3	13
Reports, assignments , oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides	Citrobacter Serratia Vibrio spp		3	14
Reports, assignments , oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	<i>Propionibacterium acnes</i> , <i>Listeria</i> .		3	15
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams					

Editorial, reports, etc	
-Practical exams: 20 marks - The mid-term exam is 20 marks - Final exam: 60 marks	
12. Learning and teaching resources	
Jawetz, Melnick, & Adelberg's Medical Microbiology, 28 the edition 2019,	Required textbooks (methodology, if found)
- Delves, P.J.; Martin, S.J.; Burton, D. R. and Roitt, I.M.(2017). Roitt's Essential Immunology, 13th ed., Wiley Blackwell. - Review of Medical Microbiology and Immunology 14th Edition - Review Of Medical Microbiology (by Warren Livenson) - Lippincott Microbiology - Microbiology 14th Edition,2017	Main references (sources)
Journal of Medical Microbiology and Infectious Diseases	Recommended supporting books and references (scientific journals, reports,...)
Daily Science	Electronic references, websites

Course Description

١. Course Name
Physical Pharmacy (I)
٢. Course Code
218 PPp1
3. Semester/Year
2 nd Class, 1 st Semester
4. Date this description was prepared
2/9/2024
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
60 hours Theory and Laboratory / 4 units
7. Name of course coordinator(s):
Name: kamil kareem atia Email:
٨. Course objectives
The course physical pharmacy is designed to provide the students with a wide background in pharmacy related physical principles essential for their study in pharmaceutics in succeeding years. Physical pharmacy integrates basic knowledge of mathematics, physics and chemistry. The course aims at introducing important pharmacy-related physical principles in areas such as states of matter, phase equilibrium and phase rule, solutions, adsorption, solubility, buffers and isotonic solutions and dispersions. It also focuses on the theories behind the phenomena needed for dosage form design. The course also presents basic understanding of types of disperse systems and methods of their preparation and assessment.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. C ourse structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3	Cognitive outputs 1. PHARMACY ORIENTATION: Introduction and orientation to the Profession of Pharmacy in relation to Hospital Pharmacy, Retail Pharmacy, Industrial Pharmacy, Forensic Pharmacy, Pharmaceutical education and research etc.	States of matter, binding forces between molecules, gases, liquids, solid and crystalline matters; phase equilibria and phase rule; thermal analysis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2		Introduction to physical pharmacy	Laboratory	
2	• 3	2. HISTORY AND LITERATURE OF PHARMACY: A survey of the history of pharmacy through ancient Greek and Arab	States of matter, binding forces between molecules, gases, liquids, solid and crystalline matters; phase equilibria and phase rule; thermal analysis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

	• 2	periods with special reference to contribution of Muslim scientists to pharmacy and allied sciences. An introduction of various official books.	Expression of concentrations in pharmaceutical preparations.	Laboratory	
۴	• 3	3. PHYSICO-CHEMICAL PRINCIPLES:	Thermodynamics, first law, thermochemistry, second law, third law, free energy function and applications.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
	• 2		Two component systems containing liquid phases.	Laboratory	-Conduct laboratory experiments
۵	• 3	Introduction, types, concentration expressions, ideal and real solution, colligative properties, their mathematical derivations and applications in pharmacy, molecular weight determinations, distribution co-efficient and its applications in pharmacy_	Thermodynamics, first law, thermochemistry, second law, third law, free energy function and applications.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
	• 2	Factors affecting solubility, Surfactants, their properties and types. Micelles	Two component systems containing liquid phases.	Laboratory	-Conduct laboratory experiments
۶	• 3	Techniques and processes of adsorption in detail_	Solutions of nonelectrolytes, properties, ideal and real colligative properties, molecular weight determination.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
	• 2	pH, pH indicators, pka, buffers, buffer's equation, isotonic solutions and their applications in pharmacy. Hydrolysis_ Types and protection of drugs against hydrolysis_	Three component systems containing liquid phases.	Laboratory	-Conduct laboratory experiments
۷	• 3	Particle size, shapes and distribution of particles, Methods of determination of particle size and importance of particle size in Pharmacy_	Solutions of nonelectrolytes, properties, ideal and real colligative	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical

		4. DISPERSIONS:	properties, molecular weight determination		examinations, semi-semester and semester
	• 2	Types, methods of preparation, properties (optional, kinetic, electrical). Dialysis and artificial kidney, stability of colloids, protection and sensitization phenomenon and application of colloids in Pharmacy_	Three component systems containing liquid phases.	Laboratory	-Conduct laboratory experiments
V	• 3	Types, theories of emulsification, emulsifying agents their classification and stability of emulsion_	Solution of electrolytes, properties, Arrhenius theory of dissociation, theory of strong electrolytes, ionic strength, Debye-Huckle theory, coefficients for expressing colligative properties.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2	Type, Methods of Preparation, Properties, Suspending agents, their classification and stability_	Determination of partition coefficient	Laboratory	
A	• 3	Acquiring skills - Principles in pharmaceutical design of dosage forms will be discussed to cover design, preparation and therapeutic efficacy of homogeneous and heterogeneous dosage forms.	Solution of electrolytes, properties, Arrhenius theory of dissociation, theory of strong electrolytes, ionic strength, Debye-Huckle theory, coefficients for expressing colligative properties.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2	- Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the drug molecule.	Determination of tie line for three component systems.	Laboratory	
9	• 3	-Acquire skill in writing scientific reports	Solution of electrolytes, properties,	the blackboard PowerPoint	Reports, assignments, oral and
		Emotional and value outcomes			
		- Thinking skills through translating, analysing,			

		evaluating and extracting ideas - Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments	Arrhenius theory of dissociation, theory of strong electrolytes, ionic strength, Debye-Huchle theory, coefficients for expressing colligative properties.	slides E-Learning	written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2	- Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	Buffer solutions	Laboratory	
١٠	• 3 • 2		Ionic equilibria, modern theories of acids, bases and salts, acid-base equilibria, calculation of pH, acidity constants, the effect of ionic strength and free energy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	• 3 • 2		Ionic equilibria, modern theories of acids, bases and salts, acid-base equilibria, calculation of pH, acidity constants, the effect of ionic strength and free energy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٢	• 3 • 2		Ionic equilibria, modern theories of acids, bases and salts, acid-base equilibria, calculation of pH, acidity constants, the	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

			effect of ionic strength and free energy.		laboratory experiments
١٣	• 3 • 2		Buffered and isotonic solutions: Buffer equation; buffer capacity; methods of adjusting tonicity and pH; buffer and biological system.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٤	• 3 • 2		Buffered and isotonic solutions: Buffer equation; buffer capacity; methods of adjusting tonicity and pH; buffer and biological system.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٥	• 3 • 2		Buffered and isotonic solutions: Buffer equation; buffer capacity; methods of adjusting tonicity and pH; buffer and biological system.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Practical exam ٢٠
- The midterm exam is ٢٠ marks
- The final exam 60 marks

12. Learning and teaching resources	
methodology, if textbooks Required any	Martin's Physical Pharmacy and Pharmaceutical Sciences
Main references (sources)	Physicochemical Principles of Pharmacy by Alexander Taylor Florence and David Attwood Fasttrack: Physical Pharmacy - by Alexander Taylor Florence and David Attwood
Recommended supporting books and references scientific journals, reports))	
references , websites	USP,BP, and FDA

1. Course Name
Physiology I
2. Course Code
219 PtPh1
3. Semester/Year
1 st Semester, 2 nd Class
4. Date this description was prepared
9/2/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total
25/20 (45) hours Theory and Laboratory
7. Name of course coordinator(s):
Name: shatha hussain kameel Email: shatha.kadhim@uokerbala.edu.iq
8. Course objectives
1) Providing students with scientific and practical theoretical background on many basic functional physiological principles related to different cells, organs, and human body systems, as well as their relationship to various diseases and essential treatments, which are necessary and fundamental to understand the effect of different medicines on the effectiveness of body systems, additionally helps students to understand the importance hallmarks of physiology and be able to do multiple practical experiments by directly doing many practical medical physiology experiments and obtaining certain results, which often translate what students may have received in the theoretical part. 2) Enable students to understand the basic principles of physiological functions of different human tissues and organs, and how to evaluate these functions and relate them to natural and abnormal conditions. It also emphasizes the role of homeostasis and hemodynamic changes in integrating the physiological state.
9. Teaching and learning strategies

		reports -The skills of extracting important and approved scientific information in writing scientific reports required for the experiments from reliable sources.	discuss the results of these experiments and scientific tests.		
2	3 2	Emotional and value outcomes - Thinking skills through translation, analysis, evaluation, and extraction of ideas	● Physiology of Different Muscles <u>Practical Part</u> Measurement of Arterial Blood Pressure by “sphygmomanometer”.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	3 2	- Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development)	● Physiology of Nerves: A) Nerve cells: <u>Practical Part</u> Re-experiment of blood pressure and comparison of the results with electronic device results.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	3 2	- Performing practical experiments - Acquiring skills in using computer	B) Synaptic transmission: <u>Practical Part</u> Experiment of Cardiovascular responses(CVR) to exercises.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

5	3 2	-Giving confidence to the student through discussing seminars - Gaining skills in writing reports - Gaining skills in leadership	A) Respiratory zones; <u>Practical Part</u> Measurement of arterial blood pressure in different positions_ supine & standing positions.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	3 2	- Acquiring skills in dealing with and motivating cooperative teamwork in as “team spirit”	B) Gas transport between the lungs and tissues; <u>Practical Part</u> Experiment of Clinical Thermometry (body temperature) Part 1.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	3 2		● A) Introduction of renal Physiology: <u>Practical Part</u> Experiment of Clinical Thermometry (body temperature) Part 2.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	3 2		● B) Tubuloglomerular feedback and glomerulotubular balance; <u>Practical Part</u> Experiment of Triple response.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

9	3 2		Cardiovascular System: <u>Practical Part</u> The experiment of Lung Functions Test Part 1.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	3 2		A) Origin and spread of cardiac excitation; B) Mechanical events of the cardiac cycle and cardiac output; <u>Practical Part</u> The experiment of Lung Functions Test Part 2.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	3 2		C) Local regulatory mechanisms: Hypertension; Heart failure; and Angina pectoris. <u>Practical Part</u> Experiment of Capillary Fragility Test, or (Hess Test) capillary resistance test.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	3 2			The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

13	3 2		•	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2		•	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		•	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- The midterm exam is 20 marks
- The practical exam (with its details) is 20
- The final exam had 60 marks

12. Learning and teaching resources

Required Textbooks (methodology, if any)	1) Guyton and Hall: Textbook of Medical Physiology. 14^{ed}, 2022. 2) Ganong's Review of Medical Physiology. 25^{ed}, 2016. 3) Ganong's Review of Medical Physiology. 26^{ed}, 2019.
Main references (sources)	1) Guyton and Hall: Textbook of Medical Physiology. 14^{ed}, 2022. 2) Ganong's Review of Medical Physiology. 25^{ed}, 2016. 3) Ganong's Review of Medical Physiology. 26^{ed}, 2019.
Recommended supporting (Books and Reference Scientific Journals, reports)	1) Human Physiology 'An integrated Approach'. 15^{ed}, 2014 2) Essentials of Human Physiology for Pharmacy. Laurie Kelly, McCorry. 2nd, (2008).
References, websites	www.physiologyplace.com

Description Course

3. Course Name
Computer Sciences III
4. Course Code
CICs 221
3. Semester/Year
First semester/ Second year
4. Date this description was prepared
2/9/2025
5. Available attendance forms
Physical attendance
6. Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name: Lecturer. Ahmed D. Rathi Email: ahmosawi@alameed.edu.iq
8. Course objectives
1. Gives students the ability to deal with the Excel sheet, and assure the knowledge and skill required to efficiently discharge the duties and responsibilities of him 2. Giving the student a scientific base on the role of artificial intelligence in their field of study due to the great orientation by scientists and researchers in the fields of medicine and pharmacy
9. Teaching and learning strategies

3	2	sources Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	1.Data set. 2. sum function. 3. sumif function. 4. sumifs function. 5. sumproduct function.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
4	2	- Transferable general and qualifying skills (other skills related to employability and personal development).	AI TECHNOLOGY	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
5	2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments	1.Data set. 2. FORECAST function. 3. Predict data in the coming months using a FORECAST function 4. TREND function.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
6	2	- Acquiring skill in using computers - Giving the student confidence through discussing seminars	AI applications and AI devices	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	1.Data set. 2. Data analysis tool.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	2		AI affects the medical field. AI in Field of Pharmacy	the blackboard PowerPoint slides	Oral and written theoretical exams, semi-semester and

				E-Learning	semester
9	2		1.Data set. 2. Data analysis tool.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
10	2		How AI is different and Languages	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
11	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
12	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
13	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
14	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
15	2			the blackboard PowerPoint	Oral and written theoretical exams, semi-

				slides E-Learning	semester and semester
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams					
Editorial, reports, etc					
- Daily exams 10 marks - Daily preparation and classroom activities 10 marks - The midterm exam is 20 marks - The final exam is 60 marks					
12. Learning and teaching resources					
Required textbooks (methodology, if any)					
Main references (sources)			- 1.Microsoft office Excel 2019 - 2.Spadafora, Anthony (21 October 2016). "Stephen Hawking believes AI could be mankind's last accomplishment". BetaNews. Archived from the original on 28 August 2017.		
Recommended supporting books and references (scientific journals, reports,...)					
references , websites			1.Microsoft office Excel 2019 2.Spadafora, Anthony (21 October 2016). "Stephen Hawking believes AI could be mankind's last accomplishment". BetaNews. Archived from the original on 28 August 2017.		

Course Description

5. Course Name
The crimes of the Ba'ath Party in Iraq
6. Course Code
UABr202
3. Semester/Year
First semester/ Second year
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
6. Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name: Lecturer. Ahmed Yaqub Ibrahim Email: ahmedyaa@alameed.edu.iq
8. Course objectives
Study the concept of crimes, their types, psychological and social crimes, their effects, the most prominent violations of the Baathist regime in Iraq, the environmental crimes of the Baathist regime in Iraq, and crimes of mass graves.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Self-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Students acquire information about the concept and types of crimes	crimes of the Baath party according to the Iraqi Supreme Criminal Court in 2005.	the blackboard PowerPoint	Discussion
2	2	Students acquire information about the crimes of the Baath party in accordance with the documentation of the Iraqi Supreme Criminal Court Law of 2005	crime sections	the blackboard PowerPoint	crime sections
3	2		Types of international crimes	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
4	2	Providing students with information about the types of	Psychological and social crimes and their effects	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and

		international crimes			semester
5	2	Providing students with information about the decisions issued by the Criminal Court and the decisions issued by the Criminal Court	the most prominent violations of the Ba'ath party in Iraq	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
6	2	Students acquire information about psychological crimes, their mechanisms and effects of	violations of Iraqi laws	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
7	3	psychological crimes	violations of Iraqi laws	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
8-9	2	Providing students with information about social crimes, the militarization of society, violations of Iraqi laws	Mid term		
10	2	the position of the Baathist regime on religion, violations of Iraqi laws	Crimes of authority	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
11	2	Providing students with information about human rights violations, crimes of the authority, and places of prisons and detention of the former regime's crimes	The environmental crimes of the Baath regime in Iraq	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
12	2		the scorched earth policy	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester

13	2	Students acquire information about the environmental crimes of the Baath regime, military and radioactive pollution, and mine explosions .	Mass grave crimes	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
14	2	Students gain information about the destruction of cities and villages, the draining of marshes, the leveling of orchards	The events of the genocide graves committed by the Baathist regime in Iraq	the blackboard PowerPoint	Oral and written theoretical exams, semi-semester and semester
15		Students acquire information about mass grave crimes Students acquire information about the events of the genocide graves committed by the Baathist regime in Iraq and the chronological classification of the genocide graves in Iraq	Final		

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Daily preparation and classroom activities 5 marks
- The midterm exam is 25 marks
- The final exam is 70 marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	Histerial Decision/Crimes of the Baath regime in Iraq
Main references (sources)	
Recommended supporting books and references (scientific journals, reports,...)	
references , websites	

Course Description

1. Course Name	
Organic Chemistry III	
2. Course Code	
223 PcOc3	
3. Semester/Year	
2nd Class, 2nd Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name :	
Email:	
8. Course objectives	
Objectives of the study subject	To teach students the principles of heterocyclic chemistry including the fundamental principles and the features, classes and reactions of heterocyclic compounds; it enable students to apply these principles in complicated reactions that involve heteroatoms.
9. Teaching and learning strategies	

	• 2	drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	• Identification of aliphatic carboxylic acid (tutorial and quiz) •	E-Learning	examinations, semi-semester and semester -Conduct laboratory experiments
3	• 2 • 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	• Five-membered ring heterocyclic compounds • Identification of aliphatic carboxylic acid (unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 2 • 2	pyrrole; furan and thiophen. Identification of aromatic carboxylic acid (known) .	pyrrole; furan and thiophen. Identification of aromatic carboxylic acid (known) .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

5	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Source of pyrrole, furan and thiophen • Identification of aromatic carboxylic acid (tutorial and quiz) .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 2 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• Electrophilic substitution in pyrrole orientation • Identification of aromatic carboxylic acid (unknown) . .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 2 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	• Electrophilic substitution in, furan Reactivity • Identification of aliphatic amine (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 2 • 2	- Acquire skill in writing reports	• Electrophilic substitution in thiophen Reactivity • Identification of aliphatic amine (unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

		- Acquiring driving skills			laboratory experiments
9	• 2 • 2	- Acquiring skill in dealing	• Six-membered ring heterocyclic compounds: Structure . • Identification of aromatic amine (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 2 • 2		• reactions of pyridine • Identification of aromatic amine (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 2 • 2		• Saturated five-membered heterocyclic compounds • Identification of aromatic amine (unknown) .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	• 2 • 2		• Heterocyclic of five • Identification of amine (tutorial and quiz) .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

					and semester -Conduct laboratory experiments
13	• 2 • 2		• Heterocyclic of six member rings . • Identification of alkyl halide (known)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 2 • 2		• Heterocyclic two heteroatoms. • Identification of alkyl halide (unknown)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 2 • 2		• Heterocyclic of three heteroatoms • Identification of organic compound (general unknown and quiz)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc	
- Practical exam 20 - The midterm exam is 20 marks - The final exam 60 marks	
12. Learning and teaching resources	
methodology, if textbooks Required any	Organic Chemistry by Robert T. Morrison and Robert N. Boyd . Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000.
Main references (sources)	Organic Chemistry by Robert T. Morrison and Robert N. Boyd . - Organic Chemistry by McCurry; 5th ed.
Recommended supporting books and references (scientific journals, reports)	Thomason learning; CA,USA; 2000
references , websites	

Course description

1. Course Name:
Microbiology II
2. Course Code
224 CIMv
3. Semester/Year:
Second semester/second year
4. Date this description was prepared:
2/9/2024
5. Available attendance forms:
Presence
6. Number of academic hours (total) / number of units (total):
45 hours
7. Name of the course leader (if more than one name is mentioned):
Name: Email:
8. Course objectives

1- The primary goal of microbiology is to provide basic information about pathological parasitology, which includes describing these parasites, methods of transmission, methods of diagnosis, pathogenesis of these parasites, types of pathogenic vectors for these parasites, methods of treatment and methods of prevention.

2- Providing basic information about virology, which includes DNA viruses, RNA viruses, and retroviruses, describing these viruses, their methods of transmission, methods of diagnosis, and methods of treatment.

3. Providing basic information about immunology, which includes identifying innate immunity and adaptive immunity, identifying the properties and types of antibodies and antigens, giving an introductory description of the complement system, identifying the biological functions of the complement system and its role in defending the body, giving an introductory description of the types of cytokines and their role in regulating the function of The immune system, learning about immunity to cancer and autoimmune diseases.

9. Teaching and learning strategies:

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Case study strategy
- Inductive teaching strategy
- Conceptual mapping strategy
- Practical field training strategy
- Self-learning strategy
- E-learning strategy
- Study strategy
- Conclusion strategy
- Spaced practice strategy
- Strategy for switching between ideas
- Strategy for providing examples

Education strategies

Education strategies

10. Course structure:

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Hours	Week
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	The blackboard PowerPoint slides E-Learning	Introduction to Parasitology and classification, Protozoa: Pathogenic Amoeba (<i>Entamoeba histolytica</i>), Introduction to Virology and general characters	Cognitive outputs The student should be able to know the causes, symptoms, and diagnosis of parasitic, viral, and immunological diseases - Determine the appropriate medication for each disease condition - Knowledge of the methods of transmission of parasitic and viral diseases - Knowledge of ways to prevent parasitic and viral diseases Acquiring skills - How to conduct and deliver qualitative seminars and lectures - Skill in drug education for patients - The skill of extracting the required information from approved sources Emotional and value outcomes -Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	3	1
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Commensal amoeba and diseases caused by free living amoeba, - Flagellates of GIT and reproductive system. - Ciliates (<i>Balantidium coli</i>), Reproduction and isolation methods for viruses		3	2
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides	Flagellates of blood and tissues (<i>Leishmania</i>), (<i>Trypanosoma</i>), Anti-viral therapy and gene interaction		3	3
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Protozoa: Haemosporidia (<i>Plasmodium</i> spp.), Classification of viruses		3	4

			transferable general and qualifying skills (other skills related to employability and personal development). -Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills		
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	(<i>Toxoplasma gondii</i>) Protozoa: Coccidia, . Echinococcus spp., HERPESVIRIDAE (HSV1&2, Varicella Zoster, HV4,5,6,7,8), POXVIRIDAE(human pox disease), ADENOVIRIDAE(adeno disease),		3	5
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Cestodes (Taenia spp., <i>Hymenolepis nana</i>), PAPOVIRIDAE(HPV and its different types), HEPADNAVIRIDAE(HBV), PARVOVIRIDAE(B19)		3	6
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Trematodes: schistosoma spp., Enveloped Segmented Single-Stranded RNA Viruses (Influenza A,B,C), Enveloped Nonsegmented ssRNA Viruses(parainfluenza, mumps virus, measles virus, RSV),		3	7
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	(Ascaris, Hookworms), Enterobius, Trichuris, Rhabdovirus family; genus Lyssavirus(Rabies), Flavivirus, ssRNA +ve sense(HCV), HIV, Nonenveloped Nonsegmented ssRNA Viruses:		3	8

Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Innate immune response: Describe the • characteristics of innate immunity, Describe physical and chemical immune barriers explain immediate and • induced innate immune responses , Picornaviruses, responses and Caliciviruses (Picornaviruses HAV), Nonenveloped Segmented dsRNA Viruses: Reoviruses (rota & reo), Prions and Spongiform Encephalopathies		3	9
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	, discuss natural killer cells describe major • histocompatibility class I, II molecules how the proteins in a • complement system function to destroy extracellular pathogens		3	10
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Cytokines: Properties of • cytokines Biological functions • of cytokines Cytokines family		3	11
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	the blackboard PowerPoint slides E-Learning	Describe the characteristics of adaptive immunity explain cell functions • (basics of B and T cells) describe the formation • of B and T cells discuss humoral • immunity (How B cells function)		3	12

semester		explain cell mediated • immunity (T cell types ,and functioning) Summarize how the • cells work together for an adaptive immune response		
Reports, assignments , oral and written theoretical examination s, semi- semester and semester	the blackboard PowerPoint slides E-Learning	Antibodies characteristics features: Distinguish between • the overall structure and the fine structure .of antibodies Describe the variable • and constant regions of an antibody's light and .heavy chains Name and compare the • biological and chemical characteristics of the five .classes of antibodies • Contrast conventional antibody and monoclonal antibody development; conceptualize the procedure for monoclonal antibody screening; and discuss hybrid monoclonal antibodies	3	13
Reports, assignments , oral and written theoretical examination s, semi- semester and semester	the blackboard PowerPoint slides	Hypersensitivity reactions: classification of • hypersensitivity types with respect to the participating immune effectors and mechanisms .of tissue damage Understand how normal • T cell and B cell antigen recognition, signalling, and effector functions contribute to .hypersensitivity Recognize the common • clinical manifestations of the 4 types of hypersensitivity	3	14
Reports, assignments , oral and written theoretical	the blackboard PowerPoint slides E-Learning	Tumor immunology: understand how the • immune system mounts an immune response against tumors understand how tumors	۳	15

examinations, semi-semester and semester		evade immunity • review strategies to combat tumors based on immunotherapy, including passive and active immunization, :Autoimmune Diseases Understand how • different autoimmune diseases are driven by the recognition of different autoantigens and have different effector mechanisms that result in injury			
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc					
-Practical exams: 20 marks - The mid-term exam is 20 marks - Final exam: 60 marks					
12. Learning and teaching resources					
Jawetz, Melnick, & Adelberg's Medical Microbiology, 28th edition 2019			Required textbooks (methodology, if found)		
Delves, P.J.; Martin, S.J.; Burton, D. R. and Roitt, I.M.(2017). Roitt's Essential Immunology, 13th ed., Wiley Blackwell. Review of Medical Microbiology and Immunology 14th Edition Bailey & Scott's Diagnostic Microbiology 14th Edition,2017			Main references (sources)		
Journal of Medical Microbiology and Infectious Diseases			Recommended supporting books and references (scientific journals, reports,...)		
Daily Science			Electronic references, websites		

Course Description

١. Course Name
Physical Pharmacy (II)
٢. Course Code
225 PPp2
3. Semester/Year
2 nd Class, 2 nd Semester
4. Date this description was prepared
2024/9/2
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
60 hours Theory and Laboratory / 4 units
7. Name of course coordinator(s):
Name: kamel kareem atia Email:
٨. Course objectives
It aims to apply theoretical and quantitative principles in the pharmacist's work The course aims at introducing important pharmacy-related physical principles in areas such as states of matter, phase equilibrium and phase rule, solutions of non-electrolytes, adsorption, solubility, buffers and isotonic solutions and rheology.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3	Cognitive outputs 1. Define saturated solution, solubility, and unsaturated solution. 2. Describe and give examples of polar, nonpolar, and semipolar solvents. 3. Define complete and partial miscibility. 4. Understand the factors controlling the solubility of weak electrolytes.	Solubility and distribution phenomena, solvent-solute interactions, solubility of gases in liquids, solubility of liquids in liquids, solubility of non-ionic solids in liquids, distribution of solutes between	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2	5. Describe the influence of solvents and surfactants on solubility.	Solubility and Solubilization by cosolvent	Laboratory	
2	• 3	6. Define thermodynamic, kinetic, and intrinsic solubility. 7. Measure thermodynamic solubility. 8. Describe what a distribution	Solubility and distribution phenomena, solvent-solute interactions, solubility of gases in liquids, solubility of liquids in liquids, solubility of non-ionic solids in liquids, distribution of solutes between	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

	• 2	coefficient and partition coefficient are and their importance in pharmaceutical systems. 1. Understand and define the following concepts: shear rate, shear stress, viscosity, kinematic viscosity, fluidity, plasticity, yield point, pseudoplasticity, shear thinning, dilatancy, shear thickening, thixotropy, hysteresis, antithixotropy, rheopexy, plug flow, and viscoelasticity. 2. Define and understand Newton's law of flow and its application. 3. Differentiate flow properties and corresponding rheograms between Newtonian and non-Newtonian materials. 4. Understand and calculate the effects of temperature on viscosity and recognize similarities between viscous flow	Solubilization by complexation.	Laboratory	
۳	• 3		Kinetics, rate and orders of reactions, influence of temperature and other factors on reactions rate, decomposition of medicinal agents and accelerated stability analysis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2		Determination of solubility product constant	Laboratory	
۴	• 3		Kinetics, rate and orders of reactions, influence of temperature and other factors on reactions rate, decomposition of medicinal agents and accelerated stability analysis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2		Kinetics	Laboratory	
۵	• 3		Kinetics, rate and orders of reactions, influence of temperature and other factors on reactions rate, decomposition of medicinal agents and accelerated stability analysis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2		• Viscosity	Laboratory	
۶	• 3		Colloids, dispersed system and its pharmaceutical application, types of colloidal systems,	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical

		and diffusion relative to temperature. 5. Recognize and identify specific rheologic behaviors with their corresponding rheograms.	kinetic properties, diffusion, zeta potential, solubilization.		examinations, semi-semester and semester -Conduct laboratory experiments
	• 2		• Viscosity	Laboratory	
γ	• 3	6. Appreciate the fundamentals of the practical determination of rheologic properties and describe four types of viscometers and their utility and limitations in determining rheologic properties of various systems.	Colloids, dispersed system and its pharmaceutical application, types of colloidal systems, kinetic properties, diffusion, zeta potential, solubilization.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2		• Viscosity	Laboratory	
λ	• 3	1. Differentiate among different types of interfaces and describe relevant examples in the pharmaceutical sciences.	Micrometrics, particle size, methods of determining particle size, particle shape and surface area, porosity, density.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2	2. Understand the terms surface tension and interfacial tension and their application in pharmaceutical sciences.	• Viscosity	Laboratory	
ρ	• 3	3. Appreciate the different methods of surface and interface tension measurements.	Interfacial Phenomena	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
	• 2	4. Calculate surface and interface tensions, surface free energy, its	Surface tension	Laboratory	
σ	• 3 • 2		Rheology, Newtonian systems, thixotropy measurement, negative	the blackboard PowerPoint	Reports, assignments, oral and

		changes, work of cohesion and adhesion, and spreading coefficient for different types of interfaces. 5. Understand the mechanisms of	thixotropy, determination of thixotropy.	slides E-Learning	written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۱۱	• 3 • 2	adsorption on liquid and solid interfaces. 6. Classify surface-active agents and appreciate their applications in pharmacy. 7. Differentiate between different types of monolayers and recognize basic methods for their	Rheology, Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۱۲	• 3 • 2	characterization. 8. Recognize the electric properties of interfaces and the effects of electrolytes. <u>Acquiring skills</u> - familiarize students with	Rheology, Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۱۳	• 3 • 2	application of physicochemical principles to the pharmaceutical design of dosage forms - Analyzing, discussing, and using the results of pharmaceutical tests in the design	Rheology, Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۱۴	• 3 • 2	and evaluation processes of the drugs. -Acquire skill in writing scientific reports	Rheology, Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

		Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients			and semester -Conduct laboratory experiments
10	• 3 • 2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	Rheology, Newtonian systems, thixotropy measurement, negative thixotropy, determination of thixotropy.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

۱۱. Course evaluation

Distribution of the grade out of ۱۰۰ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Practical exam ۲۰
- The midterm exam is ۲۰ marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	Martin's Physical Pharmacy and Pharmaceutical Sciences
Main references (sources)	Physicochemical Principles of Pharmacy by Alexander Taylor Florence and David Attwood Fasttrack: Physical Pharmacy - by Alexander Taylor Florence and David Attwood
Recommended supporting books and references (scientific journals, reports)	
references , websites	USP,BP, and FDA

Course Description

1. Course Name
Physiology II
2. Course Code
226 PtPh2
3. Semester/Year
2nd Class, 2st Semester
4. Date this description was prepared
2024/9/2
5. Available attendance forms
Physical attendance
6. Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name : shatha hussain kadhim Email: shatha.kadhim@uokerbala.edu.iq
8. Course objectives
To enable students understanding the basic principles of physiological functions of different tissues and organs of the human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions. It also emphasizes on the role of homeostatic and hemodynamic changes in the integration of physiological status.
9. Teaching and learning strategies

		Acquiring skills - Skill in drug education for patients. - The skill of treating with drug toxicity and how taken the required information from approved sources			experiments
3	• 2 • 2	-Acquire skill in writing scientific reports Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	• Pituitary gland • Estimation no.of RBCs	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 2 • 2	- Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	• Thyroid gland • Estimation no.of WBCs	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 2	- Performing practical experiments	• Adrenal cortex & medulla • differential of	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-

	• 2	- Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports	WBCs	E-Learning	semester and semester -Conduct laboratory experiments
6	• 2 • 2	-	• Female reproductive system. • Hematocrit	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 2 • 2		• Female reproductive system. • Hemoglobin estimation	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 2 • 2		• Male reproductive system • Blood Types	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

9	• 2 • 2		• hormonal control of calcium metabolism and the physiology of the bone • Anemia; Types of anemia	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
10	• 2 • 2		• endocrine functions of the pancreas • Polycythemia Types of polycythemia	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
11	• 2 • 2		• Gastrointestinal function: Digestion and absorption of carbohydrates; proteins; lipids; absorption of water and electrolytes; vitamins and minerals. • Iron metabolism	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments

12	• 2		Regulation of Gastrointestinal function. Introduction; gastrointestinal hormones;	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 2		• liver and biliary system.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 2		• Blood Physiology	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 2		• Blood Physiology	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20 marks.
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	<i>Review of Medical Physiology; Ganong W.F (Ed.) latest edition.</i>
Main references (sources)	<i>. Textbook of Medical Physiology by Guyton AC; latest edition.</i>
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Course Description

1. Course Name
Pharmacognosy I
2. Course Code
227 PhPa1
3. Semester/Year
2nd Semester/ 2nd Year
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 Theoretical hours and 30 laboratory hours
7. Name of course coordinator(s):
Name : Mazin Saleem Shaker Email: mazinsaleem97@gmail.com
8. Course objectives
This course aims to study the principles of pharmacognosy and medicinal plants, their nomenclature, classification, and chemistry of the active substances they contain, in addition to learning methods for extracting the active substances in several ways, purifying them, and diagnosing them using several types of chromatography and their applications.
9. Teaching and learning strategies

		- Identify the correct scientific methods for extracting and isolating effective components from natural sources - Determining how to use effective ingredients from natural sources as treatments in alternative medicine through scientific biological, chemical and physical examination and evaluating them through their use on laboratory animals and microorganisms. - How to deal with scientific equipment used in extracting and evaluating treatments from natural sources - Learning using various		E-Learning	semester
4	- 3 - 2		Production of crude drugs: Cultivation, collection, drying and storage.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
5	- 3 - 2		Deterioration of crude natural products.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
6	- 3 - 2		Pharmacological activities of natural products.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	- 3 - 2		Chemistry of natural drug products.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	- 3 - 2		Quality control: Evaluation of natural products; macroscopical evaluation; physical evaluation.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
9	- 3 - 2		Quality control: Evaluation of natural products; chemical evaluation; biological evaluation; spectroscopical evaluation.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
10	- 3 - 2		Phytochemical investigation of herbal products: Extraction of	the blackboard	Oral and written theoretical

		scientific techniques, including plant tissue culture, genetic change, and biotechnology	the plant material; Separation and isolation of constituents; characterization of the isolated compounds.	PowerPoint slides E-Learning	exams, semi-semester and semester
11	- 3 - 2	Acquiring skills - How to How to conduct and give seminars and specific lectures on medicinal plants and natural resources - Educational skill in the optimal use of food and treatment with medicinal herbs - The skill of extracting the required information from approved sources	Separation technique: Introduction; Mechanisms of separation and classification based on the type of technique;	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
12	- 3 - 2		paper chromatography; Thin layer chromatography; Ion-exchange chromatography; Gel filtration chromatography; Column chromatography; Gas chromatography; HPLC; Electrophoresis; Affinity chromatography.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
13	- 3 - 2		Traditional plant medicines as a source of new drugs.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
14	- 3 - 2		Tissue culture of medicinal plant: Introduction and history; laboratory of the plant tissue culture; aseptic techniques	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
15	- 3 - 2		Application of the plant tissue culture; environmental and biological control; plant growth regulators.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
		Emotional and value outcomes - Thinking skills through			

		translating, analysing, evaluating and extracting ideas - Implanting moral values for proper dealing with patients - Performing practical experiments - Acquire skill in using computers and modern applications in studying Pharmacognosy - Giving the student confidence by discussing the seminars - Gain skill in writing reports - Gain driving skill - Acquire skill in dealing			
11. Course evaluation					

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc	
- Daily exams 5 marks - Daily preparation and classroom activities 5 marks - The midterm exam is 30 mark - The final exam is 60 marks	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	Trease and Evans Pharmacognosy; 15th ed., 2000.
Main references (sources)	- Textbook Of Pharmacognosy and Phytochemistry Biren N. Shah and A.K. Seth
Recommended supporting books and references (scientific journals, reports,...)	Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition. Michael Heinrich, Joanne Barnes; Fundamentals of Pharmacognosy & Phytotherapy.
references , websites	American Society of Pharmacognosy (ASP)

DescriptionCourse

1. Course Name
Computer Sciences IV
2. Course Code
CICs 228
3. Semester/Year
Second semester / Second year
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name: Lecturer. Ahmed D. Rathie Email: ahmosawi@alameed.edu.iq
8. Course objectives
1. It gives the student the ability to deal with the SPSS program and ensures the knowledge and skill necessary to carry out his duties and responsibilities efficiently 2. Teach students how to use this program professionally
9. Teaching and learning strategies

3	2	from approved sources Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	1.Data set. 2. sum function. 3. sumif function. 4. sumifs function. 5. sumproduct function.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
4	2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	AI TECHNOLOGY	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
5	2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	1.Data set. 2. FORECAST function. 3. Predict data in the coming months using a FORECAST function 4. TREND function.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
6	2		AI applications and AI devices	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	2		1.Data set. 2. Data analysis tool.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	2		AI affects the medical field. AI in Field of Pharmacy	the blackboard PowerPoint slides	Oral and written theoretical exams, semi-semester and

				E-Learning	semester
9	2		1.Data set. 2. Data analysis tool.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
10	2		How AI is different and Languages	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
11	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
12	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
13	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
14	2			the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
15	2			the blackboard PowerPoint	Oral and written theoretical exams, semi-

				slides E-Learning	semester and semester
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams					
Editorial, reports, etc					
- Daily exams 10 marks - Daily preparation and classroom activities 10 marks - The midterm exam is 20 marks - The final exam is 60 marks					
12. Learning and teaching resources					
Required textbooks (methodology, if any)					
Main references (sources)			- 1.Microsoft office Excel 2019 - 2.Spadafora, Anthony (21 October 2016). "Stephen Hawking believes AI could be mankind's last accomplishment". BetaNews. Archived from the original on 28 August 2017.		
Recommended supporting books and references (scientific journals, reports,...)					
references, websites			1.Microsoft office Excel 2019 2.Spadafora, Anthony (21 October 2016). "Stephen Hawking believes AI could be mankind's last accomplishment". BetaNews. Archived from the original on 28 August 2017.		

Description Course

7. Course Name
Arabic language
8. Course Code
UAAI 224
3. Semester/Year
Second semester/ Second year
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
6. Number of academic hours (total) / number of units (total)
30 hours
7. Name of course coordinator(s):
Name: Email:
8. Course objectives
- Enable students to identify the nature of the language and the characteristics of the Arabic language . - Enable students to understand the rules of the Arabic language and know its impact on the formation of the semantics of the sentence and the concept of literature and its sections throughout the ages . - Enable students to write the linguistic text in a sound language away from linguistic errors . - Know how to put punctuation marks in the right place.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Inductive teaching strategy - Self-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Identify the concept of language , the nature of its composition, and what distinguishes the Arabic	The concept of language, its nature , and the features of the Arabic language	Lectures and discussions Power point	Oral and written tests, and preparing reports
2	2	language from other languages	Meaning of "speech , saying, word (noun , verb, letter)	Lectures and discussions Power point	Oral and written tests, and preparing reports
3	2	Recognizing the concept of the following terms: speech ,	Meanings of increase in verbs	Lectures and discussions Power point	Oral and written tests, and preparing reports
4	2	saying, word, and knowing the parts of the word (noun , verb, and letter).	Attribution of verbs to pronouns	Lectures and discussions Power point	Oral and written tests, and preparing reports
5	2	Identifying the	The concept of literature and its divisions	Lectures and discussions Power point	Oral and written tests, and preparing reports

6	2	additional letters in verbs and their effect in changing the meaning	Numbers	Lectures and discussions Power point	Oral and written tests, and preparing reports
7	3	Attribution of verbs to Pronouns.	Ways of Writing hamza	Lectures and discussions Power point	Oral and written tests, and preparing reports
8-9	2	The concept of literature, its	Mid term		
10	2	origins, elements and divisions	Pre-Islamic literature Mu'allaqāt	Lectures and discussions Power point	Oral and written tests, and preparing reports
11	2	Familiarity with the rules of number.	Islamic literature / Contradictions	Lectures and discussions Power point	Oral and written tests, and preparing reports
12	2	Knowing the rules of writing hamza	Prepositions and their significance	Lectures and discussions Power point	Oral and written tests, and preparing reports
13	2	Knowing the concept of Mu'allaqāt in pre-Islamic literature.	Punctuations	Lectures and discussions Power point	Oral and written tests, and preparing reports
14	2	Knowing the concept of contradictions in Islamic literature.	Language Corrections	Lectures and discussions Power point	Oral and written tests, and preparing reports
15		Knowing the meanings of prepositions and their impact on sentence formation.	Verbal Declension and Estimated Declension		
		Knowing the significance of			

		punctuation marks and their position in text Identify the correct words in use. Identify the positions of estimated Declension (ʿIʿrāb).			
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Daily preparation and classroom activities 5 marks
- The midterm exam is 25 marks
- The final exam is 70 marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	• Basic grammar of the Arabic language • Al-Wajeez in Arabic for non-specialists • Arabic lessons collector . • History of Arabic Literature
Main references (sources)	Explanation of Ibn Aqeel
Recommended supporting books and references (scientific journals, reports,...)	Lexicons and dictionaries
references , websites	

Course Description

1. Course Name
Inorganic pharmaceutical chemistry
2. Course Code
330 Pclc
3. Semester/Year
3rd Class, 1st Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours Theory and Laboratory
7. Name of course coordinator(s):
Name : Abbas Abd-Alridha Mehihi
Email: abbas-mehihi@alameed.edu.iq
8. Course objectives
To present a review of the principles of inorganic chemistry that applied to medicinal and /or pharmaceutical chemistry. It includes understanding atomic and molecular structures, and explanation of atomic structures and the relationship with binding forces and complexation. It also describes inorganic products used as pharmaceutical preparations or diagnostic tools.
9. Teaching and learning strategies

	2	the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to	(quiz and unknown).	t slides E-Learning	theoretical examinations , semi-semester and semester -Conduct laboratory experiments
3	2 2 2 2	deduce the results and their effects from the test. Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug.	- Essential and trace ions: Iron, copper - Preparation and standardization of 1N 1NaOH (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations , semi-semester and semester -Conduct laboratory experiments
4	2 2	discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill	- Essential and trace ions: sulfur, iodine. - Preparation and standardization of 1N NaOH (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations , semi-semester and semester -Conduct laboratory

		in writing scientific reports			experiments
5	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Non essential ions: Fluoride, bromide • Assay of NaOH solution (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 2 • 2	- Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	• Non essential ions: lithium, gold • Assay of NaOH solution (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 2 • 2	- Performing practical experiments - Acquiring skill in using computers	• Non essential ions: silver and mercury • Assay of sodium benzoate (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 2	- Giving the student confidence through	• Gastrointestinal agents: Acidifying agents. • Assay of sodium benzoate	the blackboard PowerPoint	Reports, assignments, oral and written

	• 2	discussing seminars - Acquire skill in writing reports - Acquiring driving skills	(quiz and unknown).	t slides E-Learning	theoretical examinations , semi-semester and semester -Conduct laboratory experiments
9	• 2 • 2	- Acquiring skill in dealing	• Antacids. • Assay of Borax (explanation of basic concepts).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations , semi-semester and semester -Conduct laboratory experiments
10	• 2 • 2		• Protective adsorbents. • Assay of Borax (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations , semi-semester and semester -Conduct laboratory experiments
11	• 2 • 2		• Topical agents. • Assay of citric acid (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations , semi-semester and semester -Conduct

					laboratory experiments
12	• 2 • 2		• Dental agents. • Assay of citric acid (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 2 • 2		• Radiopharmaceutical preparations. • Assay of magnesium hydroxide (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 2 • 2		• Radio opaque • Assay of magnesium hydroxide (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 2		• contrast media. • Assay of ammoniated mercury (unknown)	the blackboard PowerPoint slides	Reports, assignments, oral and written

	• 2		sample).	t slides E-Learning	theoretical examinations , semi-semester and semester -Conduct laboratory experiments
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	. Inorganic Medicinal and Pharmaceutical Chemistry by Block, Roche Soine and Wilson, latest edition
Main references (sources)	- Organic Chemistry by McCurry; 5th ed.
Recommended supporting books and references (scientific journals, reports)	Thomason learning; CA,USA; 2000
references , websites	

Course Description

1. Course Name
Pharmacognosy II
2. Course Code
331phpa2
3. Semester/Year
3rd Class, 1st Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours hours of theory and 30 hours Laboratory
7. Name of course coordinator(s):
Name : mazin saleem shaker E-mail: mazinsaleem97@gmail.com
8. Course objectives
This course is intended to study chemistry of other natural products namely glycosides and volatile oils.
9. Teaching and learning strategies

Education strategies Learning strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy - Study strategy - Spaced practice strategy
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10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 2	Cognitive outputs: • identify drug from natural origin and their supply, cultivation, collection, storage along with their special conditions. • define drugs from natural origin.	• Introduction: General biosynthesis pathways of secondary metabolites. • Carbohydrates.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
2	• 2 • 2	• identify the cultivation and collection conditions. • identify the storage of drugs. • apply the	• Carbohydrates. • Cardio-active glycosides	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct

		methods for the quality control and confirmity of drugs from natural origin.			laboratory experiments.
3	• 2 • 2	• define methods for quality control. • identify appropriate methods according to the source of the natural product material.	• Glycosides: Biosynthesis, physical and chemical properties • Cardio-active glycosides	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
4	• 2 • 2	• interpret natural products such as as carbohydrates , gums, musilages, enzymes and protein containg drugs.	• Cardiac glycosides • Anthraquinone glycosides.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
5	• 2 • 2	• categorize and define carbohydrates and derivatives. • categorize and define gums. • categorize and define musilages. • categorize and define enzymes as drugs.	• Saponin glycosides • Anthraquinone glycosides.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
6	• 2		• Anthraquinone glycosides	The blackboard	Reports, assignments,

	• 2	• categorize and define protein containing drugs.	• Saponin glycosides.	PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester, and semesters. conduct laboratory experiments.
7	• 2 • 2		• flavonoid glycosides; cyanophore lcosides • Saponin glycosides.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semesters.
8	• 2 • 2		• Isothiocyanate glycosides; aldehyde glycosides; alcoholic glycosides; phenolic glycosides; lactone glycosides; coumarins and chromones. • Tannins.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.
9	• 2 • 2		• Resins and resin combination; tannins. • Volatile oils	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semesters.
10	• 2 • 2		• Lipids: fixed oils and waxes. • Volatile oils	The blackboard PowerPoint	conduct laboratory experiments.

				slides E-Learning	
11	• 2 • 2		• Volatile oils: Introduction; chemistry of volatile oils; biosynthesis of volatile oils; hydrocarbons as volatile oils • Isolation of piperine from black pepper.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester.
12	• 2 • 2		• alcohols as volatile oils; aldehydes as volatile oils. • Isolation of piperine from black pepper.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.
13	• 2 • 2		• Ketones as volatile oils; Phenols as volatile oils • Isolation of belladonna alkaloids and their identification.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester.
14	• 2 • 2		• Oxides as volatile oils; Ester as volatile oils; Phenolic ethers as volatile oils. • Isolation of belladonna alkaloids and their identification.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.

15	• 2 • 2		• Non- medicinal toxic plants • Vitamins and Amino acids • Isolation of caffeine from tea.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi- semesters, and semesters.
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams, reports, etc.

- Practical exam 20 marks
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

Reference textbook	Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition.
External textbook	Trease & Evans Pharmacognosy (16Th Edition)

Course Description

١. Course Name
Pharmaceutical Technology I
٢. Course Code
332ppt1
3. Semester/Year
First semester/ third year
4. Date this description was prepared
2/9/2024
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours theory and 30 hours practices
7. Name of course coordinator(s):
Name: hassan dhulfiqar abdulameer Email: dr.hassanalbassam80@gmail.com
٨. Course objectives
To teach theoretical and practical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to prepare different dosage form. 2- Learning using different scientific techniques 3- Understand the advantage and disadvantage of different dosage form.	• Dispersed systems: their classification; comparisons between different systems. • Solutions (Into body cavity, oral and external use).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	• 3 • 2	4- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	• Solutions and types of solutions. • Solutions (Into body cavity, oral and external use).	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
3	• 3 • 2	Acquiring skills - Preparing modern designs for drug composition and	• Solubility: Factors affecting solubility; expression of dissolution; dissolution rate versus solubility • Syrups: Preparation	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

		preparation methods. -Understanding the stability and factor that effect on storage of different dosage form. -Acquire skill in writing scientific reports	techniques		
ε	• 3 • 2		• Preparation of solutions containing non-volatile materials. • quality evaluation of syrup.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
ο	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Official solutions; classification of official solutions; preparation and uses. • Review and tutorial	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
ϒ	• 3 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• Official solutions; classification of official solutions; preparation and uses(cont) • Elixirs: Preparation techniques	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
γ	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	• Aqueous solutions containing aromatic principles;. • quality evaluation of elixir.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
∧	• 3 • 2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• aromatic waters; methods of preparations; stability •	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
ρ	• 3 • 2		• Syrups: sugar based syrups;	the blackboard	Oral and written

			artificial and sorbitol based syrups;	PowerPoint slides E-Learning	theoretical exams, semi-semester and semester
١٠	• 3 • 2		• stability of syrups. • Review and tutorial.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١١	• 3 • 2		• Definition and methods of clarification; filter aids in clarification	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٢	• 3 • 2		• Preparation of solutions using mixed solvent systems; spirits, and elixirs. • Spirits: Preparation techniques	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٣	• 3 • 2		• Extraction; maceration and percolation • quality evaluation of spirit.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	• 3 • 2		• Tinctures; fluid extracts; extracts of resins and oleoresins • Dispersion of oils in inhalations	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥	• 3 • 2		• Colloidal dispersions; lyophilic; lyophobic. • Dispersion of oils in inhalations(con t)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

11. Course evaluation	
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams	
Editorial, reports, etc	
- Practical exam 20 - The mid-term exam 20 marks - The final exam 60	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	<i>Sprowel's American Pharmacy.</i>
Main references (sources)	Pharmaceutical Dosage forms and Drug Delivery Systems By Howard A. Ansel; latest edition.
Recommended supporting books and references (scientific journals, ...,reports	
references , websites	BNF, BP and USP

Course Description

1. Course Name
Biochemistry I
2. Course Code
333 CIBi1
3. Semester/Year
3 rd Class, 1st Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours Theory and Laboratory
7. Name of course coordinator(s):
Name: rudhab ibrahim mohammed Email: risamaw@alameed.edu.iq
8. Course objectives
1- The primary goal of biochemistry is to provide basic information and general principles to primary studies students that will familiarize the recipient with the special structure of small, large biological molecules. 2- Introducing third-stage students to carbohydrates, proteins, and fats, in addition to nucleic acids, enzymes, and vitamins. 3- Identify the types of enzymes and their inhibitors (enzyme kinetics).
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs - The student should be able to identify sugar compounds - Identify and know the types of monosaccharides and disaccharides. - To be able to know protein materials and their components.	• Introduction to the macromolecules biochemistry: Definitions and terms; Carbohydrate, proteins, enzymes, DNA, Clinical value. • Color reactions of proteins: Biuret test; Ninhydrin test.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3 • 2	- The student must have the ability to know fatty compounds and fatty acids and their presence in the body. - Acquiring skills	• Amino acids: Structures of A.A (table of standard A.A abbreviation and side chain); classification, properties, isomerism. • Color reactions of proteins:	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		- How to conduct and deliver seminars (seminar) - How to obtain the required information from its sources	Millons test; Hopkins-Cole test; unoxidized sulfur test.		
3	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas Transferable general and qualifying skills (other skills related to employability and personal development).	• Amino acids: Chemical reactions, Zwitter ions, titration curve calculating isoelectric point values. Examples and questions. Non standards A.A: Structures, existence and clinical value. • Solubility of proteins (effects of acid, neutral salts, heavy metals, and alkaloidal reagents).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through extensive discussion of the seminars - Acquire skill in writing reports	• Peptides: Peptide bond, resonance forms, isomers, physical properties and chemical reactions. Essential poly peptides in human body, structures, roles and clinical values. • Determination of unknown sample of proteins.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 3	- Acquiring driving skills - Acquiring skill in dealing	• Proteins: Structure and conformations of proteins, Primary structure, Secondary structure (α-helix, β-sheet), tertiary structure, quaternary structure. Classification, synthesis	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

	• 2		cellular functions (Enzymes, cell signaling, and ligand transport, structural proteins), protein in nutrition. • Effects of acids on carbohydrates: Molish test; Bials test; Anthron test; Seliwanoffs test; Mucic acid test.		-Conduct laboratory experiments
6	• 3 • 2		• 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. • Classification of carbohydrates according to reducing properties: Benedicts test; Fehlings test; Barfoed test.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3		• Carbohydrates: Chemistry and classification, biomedical importance, classification of	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

	• 2		CHO, Stereochemistry of monosaccharides, metabolism of CHO; Physiologically important monosaccharides, glycosides, disaccharides, polysaccharides. • Classification of carbohydrates according to reducing properties: Iodine test; Osazone test.		semi-semester and semester -Conduct laboratory experiments
8	• 3 • 2		• Lipids: Introduction, classification of lipids, fatty acids, 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, separation and identification of lipids, amphipathic lipids. • Determination of unknown carbohydrates sample	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3		• Enzymes: Structures and mechanism, nomenclature, classification, mechanisms of catalysis, thermodynamics,	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

	• 2		specificity, lock and key model, induced fit model, transition state stabilization, dynamics and function, allosteric modulation. Biological function, cofactors, coenzymes, involvement in disease. • Experiments on solubility of lipids.		-Conduct laboratory experiments
10	• 3 • 2		• Enzyme inhibition: Reversible inhibitors, competitive and non competitive inhibition, mixed-type inhibition, Irreversible inhibition. Inhibition kinetics and binding affinities (K_i), questions and solutions. • Acrolin test for lipids; Soap; Studying properties of soap.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 3		• Kinetics: General principles, factors effecting enzyme rates (substrate conc., pH, temperature, etc), single-substrate reaction (Michaelis-Menten kinetics), kinetic constants. Examples of kinetic	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

	• 2		questions and solutions. Control of activity and uses of in activators; multi-substrate reactions, ternary-complex mechanisms, ping-pong mechanisms, non- Michaelis-Menten kinetics, pre-steady-state kinetics, chemical mechanisms. • Determination of saponification number.		
12	• 3 • 2		• 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. • Properties of lipids: Iodine test for lipids.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 3 • 2		• Biological functions of DNA: Genes and genomes, transcription and translation, replication. • Properties of enzymes: Effects of heat on enzymes.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

14	• 3 • ۲		• Special topics: Nutrition, digestion, and absorption. Biomedical importance, digestion and absorption of carbohydrates, lipids, proteins, vitamins and minerals; energy balance. Biochemistry of hemostasis and clot formation. • Properties of enzymes: Effect of concentration of enzyme (salivary amylase) on reaction velocity.	• the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		• 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. • Properties of enzymes: Effect of pH on enzymatic activity.	• the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11. Course evaluation					

according to the tasks assigned to the student, such as 100 Distribution of the grade out of da preparation and daily, oral, and monthly exams Editorial, reports, etc	
- Practical exam 20 - The midterm exam is 20 marks - The final exam 60 marks	
12. Learning and teaching resources	
methodology, if textbooks Required any	Harper's Illustrated biochemistry 30th Edition 2015
Main references (sources)	Lehninger PRINCIPLES OF BIOCHEMISTRY - Fourth Edition 2004 Lippincotts Illustrated Reviews Biochemistry - 3rd - edition 2004
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Course Description

1. Course Name
Pathophysiology
2. Course Code
335 CIPy
3. Semester/Year
3rd Class, 1st Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Theory and practical
Number of academic hours (total) / number of units (total)
30 hours Theory (3hrs/wk) - and 30 hrs practical (2hrs/wk)
7. Name of course coordinator(s):
Name:
8. 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).

9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	1	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	Introduction.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	6	- Instilling moral values for proper dealing with	Cell injury and tissue response; Degeneration; Necrosis; Atrophy; Hypertrophy; Metaplasia and Calcification; Inflammation	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

		patients	and Repair.		semi-semester and semester -Conduct laboratory experiments
۳	4	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers	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 acidosis and alkalosis	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۴	5	- Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	Disorders of cardiovascular system: Hyperemia; Congestion and edema; Thrombosis; embolism and infarction; Shock; Coronary heart disease and MI; Rheumatic heart disease; Heart failure; Acute pulmonary edema; Essential hypertension; Secondary hypertension; Malignant hypertension; Hypotension; Aneurysm versus varicose veins;	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۵	3		Disorders of respiratory system: Pneumonias; Tuberculosis; Respiratory distress syndrome; Bronchial asthma; Emphysema and bronchiectasis; Cystic fibrosis; Pulmonary embolism; Pulmonary hypertension.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۶	4		Disorders of the renal system: Nephrotic syndrome; Glomerulonephritis; Diabetic glomerulosclerosis; Hypertensive glomerular disease; Pyelonephritis; Drug related nephropathies; Acute renal failure; Chronic renal failure	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

					experiments
γ	4		Disorders of GI and hepatobiliary systems: Peptic ulcer and Zollinger –Ellison syndrome; Irritable bowel syndrome; Crohn's disease; Diarrhea; Celiac disease; Viral hepatitis; Primary biliary cirrhosis; Liver failure; Cholelithiasis	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
^	2		Disorders of thyroid function: Hypothyroidism. Hyperthyroidism. Graves's disease. Thyrotoxicosis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	2		Disorders of adrenal function: Cushing syndrome. Adrenal cortical Insufficiency (primary and secondary). Congenital adrenal hyperplasia. Pheochromocytoma.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٠	3		Diabetes mellitus and metabolic syndrome	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	2		Dyslipoproteinemia.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

					semi-semester and semester -Conduct laboratory experiments
١٢	4		Neoplasia	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٣	2		Metabolic & rheumatic disorders of skeletal system: -Osteoporosis, osteomalacia & rickets, rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, gout, osteoarthritis syndrome.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٤	3		Alterations in the immune response (pathophysiology of immunopathology): - Hypersensitivity disorders. -.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٥	2		Transplantation immunopathology. - Immunodeficiency disorders	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

١١. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams	
Editorial, reports, etc	
- Practical exam 50 - The midterm exam is 30 marks - The final exam 60 marks	
12. Learning and teaching resources	
methodology, if textbooks Required any	an introduction to clinical medicine 7ed.Cary D. Hammer, editor Stephen J. Mc Phee editor
Main references (sources)	Essentials in Pathophysiology by: Carol Mattson Porth 2nd - Ed.and pathophysiology of disease :
Recommended supporting books and references scientific journals, reports))	https://www.us.elsevierhealth.com/nursing/pathophysiology
references , websites	https://bookauthority.org/books/best-pathophysiology-books

Course Description

1. Course Name
Organic Pharmaceutical Chemistry I
2. Course Code
337 PcOp1
3. Semester/Year
3rd Class, 2nd Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours Theory and Laboratory
7. Name of course coordinator(s):
Name : Abbas abdulrirha mehihi
Email: abbas-mehihi@alameed.edu.iq
8. Course objectives

To enable understanding mechanisms of drug action at molecular level, and the role of medicinal chemistry in the discovery and development of synthetic therapeutic agents. It also enables students to understand the concept of structure-activity relationship and its application in design and synthesis of new compounds or derivatives

9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different	• Drug distribution. • Preparation and standardization of 0.1N KMnO₄ (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

		scientific techniques			-Conduct laboratory experiments
2	3 2	3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	- Acid- base properties. - Preparation and standardization of 0.1N KMno₄ (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	3 2 3 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation	- Statistical prediction of pharmacological activity. - Assay of hydrogen peroxide solution (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	2	pharmaceutical tests in the design and evaluation	- QSAR models. - Assay of hydrogen peroxide solution (quiz	the blackboard PowerPoint	Reports, assignments, oral and written

	• 2	processes of the prepared drug. -Acquire skill in writing scientific reports	and unknown sample).	slides E-Learning	theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Molecular modeling (Computer aided drug design). • Assay of ferrous sulfate (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 3 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• Drug receptor interaction: force involved. • Assay of ferrous sulfate (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student	• Steric features of drugs. • Preparation and standardization of 0.1Na₂S₂O₄ solution (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

8	• 3 • 2	confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• Optical isomerism • Preparation and standardization of 0.1Na₂S₂O₄ solution (quiz and unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3 • 2		• biological activity. • Assay of copper sulfate (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 3 • 2		• Calculated conformation. • Assay of copper sulfate (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 3 • 2		• Three- dimensional quantitative structure activity relationships and databases. • Assay of Chlorinated Lime (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

					laboratory experiments
12	• 3 • 2		• Isosterism. • Assay of Chlorinated Lime (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
13	• 3 • 2		• Drug-receptor interaction and subsequent events. • Preparation and assay of Lugol's Solution (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
14	• 3 • 2		• General pathways of drug metabolism: Sites of drug biotransformation; Role of cytochrome P450 mono-oxygenases in oxidative biotransformation; Oxidative reactions; Reductive reactions; Hydrolytic reactions; Phase II reactions. • Preparation and assay of Lugol's Solution (quiz and unknown).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments

15	• 3 • 2		• Factors affecting drug metabolism. • Assay of Alum (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester - Conduct laboratory experiments
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	. Wilson and Gisvold Textbook of Organic medicinal and Pharmaceutical chemistry, Delgado JN, Remers WA, (Eds); 10th ed, 2004.
Main references (sources)	- Organic Chemistry by McCurry; 5th ed.
Recommended supporting books and references (scientific journals, reports)	Thomason learning; CA,USA; 2000
references , websites	

Course Description

1. Course Name
Pharmacology I
2. Course Code
338 PtPc1
3. Semester/Year
Second semester/third year
4. Date this description was prepared
2 / 9 / 2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours
7. Name of course coordinator(s):
Name: haider faleh shamik Email: hasaedi@alameed.edu.iq
8. Course objectives

1. The general objective of this course is to introduce the basic principles and concepts of pharmacology which you can apply in the rest of the medical curriculum.
2. Introduces the nature and sources of drugs and their properties, effects, and the therapeutic value of the primary agents in the major drug categories.
3. Introducing students to how medicines are handled by the body throughout the processes of absorption, distribution, metabolism and excretion (pharmacokinetics) and how they act biologically by mechanism of action and adverse drug reactions (pharmacodynamics).
4. Identify the students with routes of administration (Enteral and Parenteral) and their characteristics, as well as gain skill to choose the prefer route of administration for a specific therapeutic goal.
5. Introducing pharmacy students to the principle of neurotransmitters of the sympathetic and parasympathetic nervous system, their synthesis and release, their receptor types, their site of action and their effects. And identifying them with various classes of drugs that impact the ANS (by activating (mimetic) and inhibiting (lytic)) and knowing the mechanism of action and their uses in treating medical problems. In addition to identify side effects and contraindications of commonly used autonomic drugs.
6. Moreover, the course will cover the medications used to treat microbial infections. Where describe the general mechanisms of action of antimicrobial drugs. Illustrate the mechanism of antimicrobial drug resistance. And explain the classification, indications, and adverse effects of frequently used antimicrobial drugs (antibacterial, antimycobacterial, antifungal, antiviral, antiprotozoal, anthelmintic).

9. Teaching and learning strategies

Education strategies

Learning strategies

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Case study strategy
- Inductive teaching strategy
- Concept mapping strategy
- Practical field training strategy
- Self-learning strategy
- E-learning strategy

	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy
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10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	3	Cognitive outputs At the end of the course students shall be able to: - Describe the role and scope of pharmacology - know the basic pharmacodynamics (effects, mechanism), and clinical pharmacokinetics required for safe and effective prescribing. - Recognize adverse drug reactions, interactions and problems of drug misuse and abuse and management of them. - Understand the physiology of autonomic neurotransmissions, classify the autonomic receptors and identify the drugs affecting	General introduction to Pharmacology and Pharmacokinetics.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	3		Continue Pharmacokinetics	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
3	3		Drug Receptor interaction and Pharmacodynamics.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
4	3		Continue Pharmacodynamics. The autonomic nervous system.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

5	3	them. - Classify or list each group or class of antimicrobial drugs and understand the mechanism of action, kinetics and toxicity of the antimicrobial drugs, clinical uses and the precautions that should be taken before their use.	Cholinergic system.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
6	3		Continue Cholinergic system.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	3	- Apply the gained knowledge in treating the patient and educate him about his health and determine the appropriate medication for each disease condition.	Adrenergic system.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	3	Acquiring skills	Continue Adrenergic system.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
9	3	- How to conduct and give qualitative seminars and lectures - Skill in drug education for patients - The skill of extracting the required information from approved sources	Principal of antimicrobial therapy.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
10	3		Continue β - lactam and other cell wall synthesis inhibitor antibiotics.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
11	3	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and	Quinolones, Folate antagonists, and urinary tract antiseptics.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

12	3	extracting ideas - Implanting moral values for proper dealing with patients	Protein synthesis inhibitors.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
13	3	Transferable general and qualifying skills (other skills related to employability and personal development).	Continue Protein synthesis inhibitors. Antimycobacterial Drugs.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
14	3		Antifungal drugs. Antiprotozoal drugs.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
15	3		Anthelmintic drugs. Antiviral drugs.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc.

- Daily exams 5 marks
- Daily preparation and classroom activities 5 marks
- The midterm exam is 20 marks
- The final exam is 70 marks

12. Learning and teaching resources

Required textbooks
(methodology, if any)

Lippincott Illustrated Reviews Pharmacology 7th Edition, 2019.

Main references (sources)	- Goodman & Gilman's The Pharmacological Basis of Therapeutics 13th edition 2018. - Basic & Clinical Pharmacology 14th Edition 2018 - Rang & Dale's Pharmacology 9th Edition 2020.
Recommended supporting books and references (scientific journals, reports,...)	British National Formulary
References, websites	FDA

Description Course

١. Course Name
Pharmaceutical Technology II
٢. Course Code
339 ppt2
3. Semester/Year
Second semester/ third year
4. Date this description was prepared
2/9/2024
٥. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours theory and 30 hours practices
7. Name of course coordinator(s):
Name:hassan dhlfiqar Abdulameer Email: dr.hassanalbasam80@gmail.com

٨. Course objectives

To teach theoretical and practical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses.

9. Teaching and learning strategies

Education strategies

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Case study strategy
- Inductive teaching strategy
- Concept mapping strategy
- Practical field training strategy
- Self-learning strategy
- E-learning strategy

Learning strategies

- Study strategy
- Conclusion strategy
- Spaced practice strategy
- Strategy for switching between ideas
- Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	• 3 • 2	Cognitive outputs 1- How to prepare different dosage form. 2- Learning using different scientific techniques 3- Understand the	• Emulsions; purpose of emulsification;; • Emulsions: Preparation techniques practically	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	• 3 • 2	advantage and disadvantage of different dosage form . 4- The ability to write and draft pharmaceutical laboratory reports on the results of	• Methods of emulsification • Quality evaluation	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	• 3 • 2		• Emulsifying agents; HLB system;;	the blackboard PowerPoint	Oral and written theoretical

		scientific examinations and tests and the ability to deduce the results and their effects from the test.	Review and tutorial	slides E-Learning	exams, semi-semester and semester
٤	3 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods.	- Stability of emulsions. - Suppositories:	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٥	3 2	-Understanding the stability and factor that effect on storage of different dosage form.	- Lotions; - Preparation techniques and quality evaluation	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٦	3 2	-Acquire skill in writing scientific reports	- Liniments and collodions. - Powders: Preparation techniques	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٧	3 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	- Suppositories - Quality evaluation of powder.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٨	3 2	- Instilling moral values for proper dealing with patients	- Suppositories (cont) - Capsules: Preparation techniques	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٩	3 2	Transferable general and qualifying skills (other skills related to employability and personal development).	- Powdered dosage forms - Quality evaluation of capsul.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٠	3 2	- Performing practical experiments - Acquiring skill in	- Powdered dosage forms(cont) - Review and tutorial	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١	• 3 • 2	using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports	• Powdered dosage forms(cont) • Semisolid dosage forms	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٢	• 3 • 2	- Acquiring driving skills - Acquiring skill in dealing	• Semisolid dosage forms • Preparation techniques of semisolid.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٣	• 3 • 2		• Semisolid dosage forms(cont) • Quality evaluation of semisolid.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	• 3 • 2		• Semisolid dosage forms(cont) • Quality evaluation of semisolid (cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥	• 3 • 2		• Incompatibilities in pharmaceutical dosage forms. • Review and tutorial	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The mid-term exam 20 marks
- The final exam 60

12. Learning and teaching resources

Required textbooks (methodology, if (any

Sprowel's American Pharmacy.

Main references (sources)	Pharmaceutical Dosage forms and Drug Delivery Systems By Howard A. Ansel; latest edition.
Recommended supporting books and references (scientific journals, (...), reports	
references , websites	BNF, Bp and USP

Course Description

1. Course Name	
Biochemistry II	
2. Course Code	
340 CIBi2	
3. Semester/Year	
3 rd Class, 2 nd Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name: rudhab ibrahim mohammed Email: risamawi@alameed.edu.iq	
8. Course objectives	
Objectives of the study subject	1- The primary goal of biochemistry is to provide basic information and general principles to primary studies students that will familiarize the recipient with the metabolic pathways of large and small biological molecules. 2- Introducing third-stage students to the metabolic processes of carbohydrates, proteins, and fats, in addition to

	nucleic acids, enzymes, and vitamins. 3- Learn how to regulate and control metabolism through the work of enzymes.
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9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs -The student should be able to know the path that food takes from the moment it is eaten. - Determining the fate of mono, di, and poly saccharides	• Overview of Metabolism and the Provision of Metabolic Fuels • General urine examination: Physical properties.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3 • 2	during their journey from the mouth until they reach the cells. - To be able to know the	• Glycolysis and the Oxidation of Pyruvate • General urine examination: Chemical properties; Protein	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

		metabolism of proteins. - The student should have the ability to follow proteins during their journey from the mouth to the cells.	in urine; Sugar in urine.		and semester -Conduct laboratory experiments
3	3 2	- The student must have the ability to follow fats and fatty acids during their journey from the mouth to the cells Acquiring skills - How to conduct and deliver seminars (seminar) - How to obtain the required information from its sources	- The Citric Acid Cycle: The Central Pathway of Carbohydrate, Lipid and Amino Acid Metabolism - General urine examination: Ketone bodies in urine (Rothera test); Bile salts in urine (Hays test); Bilirubin in urine.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	3 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	- The Respiratory Chain and Oxidative Phosphorylation. - General urine examination: Evaluation of unknown urine sample.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	3 2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing	- Bioenergetics: The Role of ATP - Cerebrospinal fluid analysis: Measurement of glucose in CSF.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	3 2		- Metabolism of Glycogen - Cerebrospinal fluid analysis:	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

		practical experiments - Acquiring skill in using computers	Measurement of chloride in CSF.		semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Giving the student confidence through extensive discussion of the seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• Gluconeogenesis and the Control of Blood Glucose • Cerebrospinal fluid analysis: Measurement of proteins in CSF.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 3 • 2		• The Pentose Phosphate Pathway and Other Pathways of Hexose Metabolism • Serum calcium measurement.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3 • 2		• Biosynthesis of Fatty Acids and Eicosanoids • Blood phosphorus measurement (inorganic phosphate).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 3 • 2		• Oxidation of Fatty Acids: Ketogenesis • Serum total proteins (quantitative analysis).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

					experiments
11	• 3 • 2		• Metabolism of Acylglycerols and Sphingolipids • Estimation of urea level in the blood.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	• 3 • 2		• Lipid Transport and Storage • Measurement of serum uric acid level.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 3 • 2		• Cholesterol Synthesis, Transport, and Excretion. • Measurement of serum ascorbic acid level.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2		• Biosynthesis of the Nutritionally Nonessential Amino Acids • Gastric juice analysis: Detection of free hydrochloric acid concentration.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3		• Catabolism of Proteins and of Amino Acid Nitrogen.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical

	2		Gastric juice analysis: detection of free acid, total acid content.		examinations, semi-semester and semester -Conduct laboratory experiments
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11. Course evaluation

according to the tasks assigned to the student, such as 100 Distribution of the grade out of
da preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	Harper's Illustrated biochemistry 30th Edition 2015
Main references (sources)	Lehninger PRINCIPLES OF BIOCHEMISTRY - Fourth Edition 2004 Lippincotts Illustrated Reviews Biochemistry - 3rd - edition 2004
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Course Description

1. Course Name
Pharmacognosy III
2. Course Code
341PhPa3
3. Semester/Year
3rd Class, 2nd Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours of theory and 30 hours of Laboratory
7. Name of course coordinator(s):
Name: mazin saleem shaker E-mail: mazinsaleem97@gmail.com
8. Course objectives
This course is intended to study chemistry of other natural products namely alkaloids and antibiotics. Also, this course includes studying phytotherapy & tissue culture techniques utilized for production of natural products.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion Strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 2	Cognitive outputs: • identify drug from natural origin and their supply, cultivation, collection, storage along with their special conditions. • define drugs from natural origin.	• Alkaloids: Introduction • Isolation of Peganum harmala alkaloids.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
2	• 2 • 2	• identify the cultivation and collection conditions. • identify the storage of drugs. • apply the methods for the quality control and	• Pyridine, piperidine, pyrrolidine alkaloids. • Isolation of Peganum harmala alkaloids.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.

3	• 2 • 2	- confirmity of drugs from natural origin. • define methods for quality control. • identify appropriate methods according to the source of the natural product material.	• Tropane alkaloids • Preparation of Khellin.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
4	• 2 • 2	• interpret natural products such as as carbohydrates , gums, musilages, enzymes and protein containg drugs.	• Quinoline alkaloids • Preparation of Khellin.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
5	• 2 • 2	• categorize and define carbohydrates and derivatives. • categorize and define gums. • categorize and define musilages. • categorize and define enzymes as drugs.	• Isoquinoline alkaloids • Flavonoids of Ruta graveolens.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester. conduct laboratory experiments.
6	• 2 • 2	• categorize and define protein containing	• Imidazole alkaloids • Flavonoids of Ruta graveolens.	The blackboard PowerPoint slides	Reports, assignments, oral and written theoretical

		drugs.		E-Learning	examinations, semi- semesters, and semesters. conduct laboratory experiments.
7	• 2 • 2		• Indole alkaloids • Extraction of hesperidin.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi- semesters, and semesters.
8	• 2 • 2		• Amino alkaloids • Extraction of hesperidin.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.
9	• 2 • 2		• Steroidal alkaloids • Isolation of pectin.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi- semesters, and semesters.
10	• 2 • 2		• Lupinane alkaloids • Isolation of pectin.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.

11	• 2 • 2		• Purine alkaloids • Isolation of citric acid from lemon juice.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester.
12	• 2 • 2		• Antibiotics biosynthetic approach • Isolation of citric acid from lemon juice.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.
13	• 2 • 2		• Antibiotics continue • Isolation of Podophyllotoxin from Podophyllum emodi; Isolation of Rotenone from Lonchocarpus Spp.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester.
14	• 2 • 2		• phytotherapy :Introduction , principles, medicinal plants in selected health care systems. • Isolation of Podophyllotoxin from Podophyllum emodi; Isolation of Rotenone from Lonchocarpus Spp.	The blackboard PowerPoint slides E-Learning	conduct laboratory experiments.

15	• 2 • 2		• Phytotherapy: Important natural products & phytomecines used in pharmacy & medicine • Isolation of Peganum harmala alkaloids.	The blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester, and semester.
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams, reports, etc.

- Practical exam 20 marks
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

Reference textbook	Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition.
External textbook	Trease & Evans Pharmacognosy (16Th Edition)

Course Description

١. Course Name	
Pharmaceutical ethics	
٢. Course Code	
342 CpPe	
3. Semester/Year	
third Class, second Semester	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
15 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name: rudhab ibrahim mohammed Email: risamawi@alameed.edu.iq	
٨. Course objectives	
Objectives of the study subject	To provide the students information about the principles of pharmaceutical ethics which provide guidance for the pharmacists in his \her relationship with the patients, other health care providers
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	• 1	Cognitive outputs 1- How to deal with patients. 2- Learning using different scientific techniques 3-	• Introduction to Pharmacy Ethics (Theoretical considerations).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٢	• 1	Improving dealing with the various ethical issues facing the pharmacist in the labor market. 5- The ability to write and draft reports related to the ethical laws that must be adhered to by the pharmacist.	• Law and Ethics	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٣	• 1		• Code of Ethics for Pharmacists.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

		Acquiring skills -Preparing students capable of dealing with patients according to ethical laws. -Acquire skill in writing scientific reports			semi-semester and semester -Conduct laboratory experiments
ε	• 1	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• The Common Ethical Considerations in Pharmaceutical Care Practice • (Beneficence,	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
ο	• 1	Transferable general and qualifying skills (other skills related to employability and personal development).	• Common Ethical Considerations in Pharmaceutical Care Practice • Autonomy, Honesty	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
ϛ	• 1	- Performing practical experiments - Acquiring skill in using computers - Giving the	• Common Ethical Considerations in Pharmaceutical Care Practice • Informed Consent, Confidentiality, Fidelity).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
Ϝ	• 1		• Interprofessional Relations.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

		student confidence through discussing seminars			experiments
٨	• 1	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• Making ethical decisions.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٩	• 1		• Ethical issues related to clinical pharmacy research.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٠	• 1		• Ethical problems in the pharmacist's clinical practice.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	• 1		• Preventing misuse of medicines.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

١٢	• 1		Case studies in pharmacy ethics.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٣	• 1		Special problem areas like abortion	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٤	• 1		Ethical issues related to contraception	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٥	• 1		Ethical issues related to sterilization	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١. Course evaluation					

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams	
Editorial, reports, etc	
- Mid-term exam 30 marks - Final exam 70 marks	
12. Learning and teaching resources	
methodology, if textbooks Required any	1-Ruth Rodgers, (ed.); fast track: Law and Ethics in Pharmacy Practice. Pharmaceutical Press 2010. 2-Joy Wingfield and David Badcott . Pharmacy Ethics and Decision Making. Pharmaceutical Press 2007
Main references (sources)	Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide, 2nd Edition. • Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. second edition. • Copyright © 2008 by Oxford University Press, Inc.
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Course Description

1. Course Name
Pharmacology II
2. Course Code
444 PtPc2
3. Semester/Year

4 th year, 1st Semester	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
٤٥ hours Theory and 30 hours of Laboratory work	
7. Name of course coordinator(s):	
Name : Haider falih shamik hasaedi@alameed.edu.iq	
٨. Course objectives	
Objectives of the study subject	1- The primary goal of pharmacology is to provide basic information and general principles upon which the optimal use of medications in treating patients is based. 2- To introduce the pharmacy students to the general pharmacology of the central nervous system and to the various drug groups used in the treatment of CNS diseases or drugs altering its function. 3- The student will be introduced to the various drugs used in the management of cardiovascular diseases and blood disorders. 4- Moreover the course will cover the drugs affecting the gastrointestinal and respiratory systems.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	• 3 • 2	-Cognitive outputs - The student should be able to know the causes, symptoms, and diagnosis of various diseases	• Introduction to CNS pharmacology. CNS stimulants. • Introduction of pharmacology	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٢	• 3 • ٢	- Determine the appropriate medication for each disease condition - Know everything related to the effects of therapeutic and offending drugs and	• Anxiolytic and Hypnotic drugs. • Demonstration of some laboratory equipments.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٣	• ٣		• General and Local Anesthetics. • Routes of	the blackboard PowerPoint slides	Reports, assignments, oral and written

	• ٢	contraindications for use - How to treat the patient and educate him about his health.	administration	E-Learning	theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٤	• ٣ • ٢	- Studying methods for calculating concentrations of dangerous drugs in the blood and how to deal with them	• Antipsychotic (neuroleptic) drugs. • Onset Of Action And Duration Of Drug	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٥	• ٣ • ٢	-Acquiring skills - How to conduct and give qualitative seminars and lectures - Skill in drug education for patients and dealing with patients	• Opioid analgesics and antagonists. • Onset Of Action And Duration Of Barbiturates	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٦	• ٣ • ٢	- How to dispense medicine in pharmacies for minor cases - The skill of extracting the required information from approved sources	• Treatment of neurodegenerative diseases.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٧	• ٣ • ٢		• Antiepileptic Drugs.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

					-Conduct laboratory experiments
٨	• ٣ • ٢	-Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Implanting moral values for proper dealing with patients	• Antihypertensive drugs. • Effect of Parasympathomimetic on glandular secretions	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٩	• ٣ • ٢	-Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquire skill in using computers Giving the student confidence by discussing the	• Diuretics. • The treatment of heart failure (HF). • Evaluation of the Non- Steroidal Anti-Inflammatory Drugs (NSAIDs)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٠	• ٣ • ٢		• Antiarrhythmic drugs.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	• ٣ • ٢		• Antianginal Drugs.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

١٢	• ٣ • ٢	seminars - Gain skill in writing reports - Gain driving skill Acquire skill in dealing	• Drugs affecting the blood. • Evaluation of Opioid analgesics	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٣	• ٣ • ٢		• Antihyperlipidemic drugs. • Effect of Drugs on Human Eyes	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٤	• ٣ • ٢		• Gastrointestinal and antiemetic drugs.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٥	• ٣ • ٢		• Drugs acting on the respiratory system.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

١١. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams	
Editorial, reports, etc	
- Practical exam 50 - The midterm exam is 50 marks - The final exam 60 marks	
12. Learning and teaching resources	
Required textbooks (methodology, if any)	Lipincott Illustrated Reviews Pharmacology 7rd Edition 2019 ,
Main references (sources)	Goodman & Gilman's The Pharmacological - .Basis of Therapeutics 13th edition 2018 Katzung & Trevor's Pharmacology - Examination and Board Review 12th Edition 2019 Rang & Dale's Pharmacology 9th Edition 2020 -
Recommended supporting books and references (scientific journals, (...reports	British National Formulary
references , websites	FDA

Course Description

1. Course Name
Organic Pharmaceutical Chemistry II
2. Course Code

445 PcOp2	
3. Semester/Year	
4th Class, 1st Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name : Abbas abd-alridha mehihi	
Email: abbas-mehihi@alameed.edu.iq	
8. Course objectives	
The course is devoted to the discovery and development of new agents for treating diseases, and enables translating the drug structural formula into therapeutic effect. Additionally, it focuses on the methods of preparation for some pharmaceutical agents	
9. Teaching and learning strategies	
Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy
Learning strategies	- Self-learning strategy - E-learning strategy

- Study strategy
- Conclusion strategy
- Spaced practice strategy
- Strategy for switching between ideas
- Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the	• Cholinergic agents, cholinergic receptors and their subtypes. • Preparation of salicylic acid.).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3 • 2	the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the	• Cholinergic agonists; stereochemistry • Re-crystallization of salicylic acid.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		results of scientific examinations and tests and the ability to deduce the results and their effects from the test.			
3	• 3 • 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug.	• structure-activity relationships (SAR) • Synthesis of aspirin.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• products; cholinesterase inhibitors. • Re-crystallization of aspirin.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Cholinergic blocking agent; structure-activity relationships (SAR); Solanaceous alkaloid and analogues; • Assay of aspirin (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

		- Instilling moral values for proper dealing with patients			laboratory experiments
6	• 3 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents). • Assay of aspirin (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	• Analgesic agents (SAR of morphine, SAR of meperidine type molecules) • Assay of ferrous sulfate (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 3 • 2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• SAR of methadone type compounds; N-methylbezomorphans, antagonist type analgesics in benzomorphans). • Preparation of nitrobenzene.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3 • 2		• Analgesic receptors, endogenous opioids; Products; Antitusive agents; Anti-inflammatory analgesics.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

			Preparation of aniline.		and semester -Conduct laboratory experiments
10	3 2		- Adrenergic agents (Adrenergic neurotransmitters); Adrenergic receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic agents; Adrenergic receptor antagonists. - Preparation of acetanilide.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	3 2		- CNS depressant; Benzodiazepines and related compounds; Barbiturate - Re-crystallization of acetanilide.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	3 2		- CNS depressant with skeletal muscle relaxant properties; Antipsychotics; Anticonvulsants. - Chlorosulfonation of acetanilide.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	3		- CNS Stimulants - Amination of p-chlorobenzene sulfonyl	the blackboard PowerPoint	Reports, assignments, oral and written

	• 2		chloride.	slides E-Learning	theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2		• Steroidal • Hydrolysis of p-chlorobenzene sulfonyl chloride to sulfanilamide.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		• nonsteroidal hormones • Assay of sulfa drugs (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	. Wilson and Gisvold Textbook of Organic medicinal and Pharmaceutical chemistry, Delgado JN, Remers WA, (Eds); 10th ed, 2004.
Main references (sources)	- Organic Chemistry by McCurry; 5th ed.
Recommended supporting books and references (scientific journals, reports)	Thomason learning; CA,USA; 2000
references , websites	

Course Description

1. Course Name
Clinical Pharmacy I
2. Course Code
446 CpCp1
3. Semester/Year
4 st Class, 1st Semester

4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
60 hours Theory and Laboratory (45 unit)	
7. Name of course coordinator(s):	
Name :Ali hamid abd-alhusaain Email: alihamid8282@gmail.com	
8. Course objectives	
Introduce students to the philosophy of “pharmaceutical care” and the skills and attitudes necessary to develop a pharmaceutical care practice. The weekly practices emphasize active and collaborative learning activities to provide students with problem-solving skills, communication skills; ethical standards of conduct; and responsible attitudes toward patient care as well as a sound scientific knowledge base.	
9. Teaching and learning strategies	
Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas

	Examples strategy
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10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	2	Cognitive Outputs: 1. Learning communication skills and how to interact with patients. In practical aspects, scenarios resembling real-life situations are conducted where the student acts as a pharmacist and their performance is evaluated.	Communication with patients.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	2	2. Learning how to treat simple respiratory conditions such as colds and coughs, distinguishing them from more serious and complex cases requiring medical consultation. Additionally, learning treatment and prevention methods. Practical training involves scenarios mimicking real-life situations where the	Respiratory system in practice (part I) : Cough.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

		student acts as a pharmacist, and their performance is assessed.			
3	2	3. Learning how to treat simple digestive system conditions such as constipation, distinguishing them from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods.	Respiratory system in practice (part II) : Common cold.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
4	2	4. Learning how to treat simple digestive system conditions such as diarrhea, distinguishing them from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods.	G.I.T system in practice (part I): Constipation	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
5	2	5. Learning how to treat simple digestive system conditions such as indigestion, increased stomach acidity, and acid reflux, distinguishing them	G.I.T system in practice (part II): Diarrhea and IBS.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
6	2		GIT system in practice (part	the blackboard PowerPoint	Reports, assignments, oral and

	2	from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods. Practical training involves scenarios mimicking real-life situations where the student acts as a pharmacist, and their performance is evaluated.	III): GERD	slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	written theoretical examinations, semi-semester and semester
7	2 2	6. Learning how to treat simple skin conditions such as psoriasis, skin tags, and warts, as well as hair loss treatment, distinguishing them	• Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
8	2	from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods. Practical training involves scenarios mimicking real-life situations where the student acts as a pharmacist, and their performance is assessed.	Skin conditions in practice (part II): Dandruff and Eczema	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
9	2 2	7. Learning how to treat simple pediatric conditions such as oral thrush, diaper rash, colic, and fever, distinguishing them from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods.	Skin conditions in practice (part III): warts and scabies.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
10	2	Practical training involves scenarios mimicking real-life	Collective Practice number 1.	the blackboard PowerPoint slides	Reports, assignments, oral and written

	2	situations where the student acts as a pharmacist, and their performance is evaluated.		E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	theoretical examinations, semi-semester and semester
11	2	8. Learning how to treat simple women's health conditions, distinguishing them from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods. Practical training involves scenarios mimicking real-life situations where the student acts as a pharmacist, and their performance is assessed.	Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
12	2	9. From weeks nine to fifteen, learning topics related to the eye, ear, headache, muscles, as well as smoking cessation and insomnia treatment. Learning how to treat simple conditions affecting these organs and how to distinguish them from more serious and complex cases requiring medical consultation. Also, learning treatment and prevention methods. Practical training involves scenarios mimicking real-life situations where the student acts as a pharmacist, and their performance is evaluated.	Minor eye disorders in practice.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
13	2		Women health in practice.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
14	2		Insomnia and motion sickness in practice.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

	2			Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	semi-semester and semester
15	2		Collective practice number 2.	the blackboard PowerPoint slides E-Learning Conducting scenarios that simulate the role of a pharmacist in the pharmacy.	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
	2				

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 8th edition
Main references (sources)	- Lor waterfield, Community Pharmacy Hand Book, 5th edition
Recommended supporting books and references (scientific journals, reports)	• Paul Rutter. Community Pharmacy. Symptoms, Diagnosis and Treatment. 5 th edition. 2021
references , websites	https://www.medscape.com/

Description Course

1. Course Name	
Biopharmaceutics	
2. Course Code	
447 PBp	
3. Semester/Year	
4 th Class, 1 st Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
60 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name: Email :	
8. Course objectives	
Objectives of the study subject	The course deals with the physical and chemical properties of drug substance, dosage form and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human from a given dosage form. The pharmacokinetic part of the course deals with the time-course of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the	1- Introduction to biopharmaceutics. 2- Preparation of calibration curve of salicylic acid.	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
2	• 2 • 2		1- Biopharmaceutic aspects of products; drug absorption; mechanisms of absorption; 2- In vitro evaluation of bulk laxative.	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
3	• 2		1- physicochemical factors that effect on absorption ;dissolution rate.	the whiteboard PowerPoint slides	Reports, assignments, oral and written

	• ۲	results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	2- In vitro evaluation of antacids	E-Learning	theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۴	• 2 • 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	1- type of dosage forms and effects of excipients on dosage form 2- Dissolution of tablets in acidic media	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۵	• 2 • ۲		1- One compartment open model. 2- Dissolution of tablets in basic media	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۶	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	1- Multicompartment models. 1- Review and tutorial.	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۷	• 2 • 2	- Instilling moral values	1- Pharmacokinetics of drug absorption. 2- Determination of	the whiteboard PowerPoint slides	Reports, assignments, oral and written

		for proper dealing with patients	pharmacokinetic parameters from CP-time by residual method.	E-Learning	theoretical examinations semi- , semester and semester -Conduct laboratory experiments
٨	• 2 • 2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	1- Bioavailability and bioequivalence 2- Review and tutorial	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
٩	• 2 • 2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	1- Clearance of drugs from the biological systems. 2- Determination of pharmacokinetic parameters from CP-time by trapezoidal method	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
١٠	• 2 • ٢		1- Hepatic elimination of drugs. 2- Review and tutorial	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
١١	• 2		1- Protein binding of drugs.	the whiteboard PowerPoint slides	Reports, assignments, oral and written

	• 2		2- Determination of pharmacokinetic parameters from urine excretion samples.	E-Learning	theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۱۲	• 2 • 2		1- Intravenous infusion 2- Review and tutorial	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۱۳	• 2 • 2		1- Multiple dosage regimens. 2- Hydrolysis of aspirin	the whiteboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۱۴	• 2 • ۲		1- Non-linear pharmacokinetics. 2- Hydrolysis of enteric coated aspirin in buffer pH 6.8.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
۱۵	• 2 • ۲		1- Dosage adjustment in renal diseases. 2- Review and tutorial	the blackboard PowerPoint slides	Reports, assignments, oral and written

				E-Learning	theoretical examinations semi- , semester and semester -Conduct laboratory experiments
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	Lab Manual for Practical Pharmacology Adopted by the Department
Main references (sources)	Shargel L, Yu AB, (Eds.), Applied Biopharmaceutics and Pharmacokinetics; Latest edition
Recommended supporting books and references (scientific journals, reports)	
references , websites	

DescriptionCourse

١. CourseName	
Public Health	
٢. CourseCode	
448 ClPu	
3. Semester/Year	
4th Class, 1st Semester	
4. Date this description was prepared	
2/9/2024	
٥. Available Attendance Forms	
Physical attendance	
Number of units (total) / Number of academic hours (total)	
Two hours per week and two units	
7. Name of course coordinator(s):	
Name: Ghufran lutfi ismail	
8. Course Objectives	
Learning how to educate and promote health-related awareness to manage common clinical conditions and minor ailments in the community	
9. Teaching and learning strategies	
Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept Mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Example-presentation strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the topic or unit	Learning method	Evaluation method
١	2	Knowledge learning outcomes 1- Causes, symptoms, and diagnosis of minor ailments and common conditions in the community 2- How to deal with health-related conditions in general, especially with cases that commonly occur in the community 3- How to manage clinical cases and educate patients about their health 4- Educating the student scientifically in his major field of study 5- How to conduct and deliver qualitative seminars and lectures Acquired skills 1- Skills of how to communicate with patients 2- The skill of educating patients about their medications 3- The skill of extracting the required information from approved sources	Principles and introduction to public health	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٢	2		Principles and introduction to epidemiology	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٣	2		Epidemiological study designs and outcome measures	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٤	2		Gastrointestinal disorders part I	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٥	2		Gastrointestinal disorders part II	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٦	2		Skin disorders part I	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٧	2		Skin disorders part II	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٨	2	Thinking and analytical skills 1- Thinking skills through translating, analysing, evaluating and extracting ideas 2- Instilling moral values for proper management of patients	Overall review and discussion of previous topics	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
٩	2		Nutritional disorders part I	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
١٠	2		Nutritional disorders part II	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
		General acquired skills (other skills related to			

١١	2	employability and personal development) - Acquiring listening and reading skills - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports - Acquiring leadership skills - Acquiring communication skill	Respiratory disorders part I	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
١٢	2		Respiratory disorders part II	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
١٣	2		Maternal and child health part I	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
١٤	2		Maternal and child health part II	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams
١٥	2		Overall review and discussion of previous topics	Black board PowerPoint slides E-learning	Reports, assignment, oral and written exams, midterm and final term exams

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the students such as daily preparation and daily and monthly exams, reports, editorials, etc..

Midterm exam 30 marks

Final exam 70 marks

12. Learning and teaching resources

Textbooks (if any required)	Maxcy-Rosenau-Last Public Health and Preventive Medicine Public Health and Preventive Medicine [15 ed.], 2008 by Robert Wallace
Main references (sources)	Short Textbook of Public Health medicine for the tropics, 4th edition, 2003 by Adetokunbo O. Lucas, Herbert M. Gilles
Recommended supporting books and references (reports, scientific journals)	WHO journal (Eastern Mediterranean Health Journal)
Websites, references	WHO website, UpToDate database, MedScape database

Course Description

١. Course Name	
Pharmacology III	
٢. Course Code	
450PtPc3	
3. Semester/Year	
Second semester/fourth year	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
30 hours	
7. Name of course coordinator(s):	
Name: Haider falih shamik hasaedi@alameed.edu.iq	
٨. Course objectives	
Objectives of the study subject	١. The primary goal of pharmacology is to provide basic information and general principles upon which the optimal use of medications in treating patients is based. ٢. Introducing pharmacy students to the different drug groups that affect the endocrine glands and their uses in treating endocrine dysfunction. 3. Identify the medications used to treat tumor diseases, their methods of action, side effects, and contraindications for their use. 4. Study of medications affecting bone hardness and density, obesity and erectile dysfunction. 5. Study the groups of anti-inflammatory drugs and those used in the treatment of rheumatism and gout, and find out the indications

	for use and side effects
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9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	٢	Cognitive outputs - The student should be able to know the causes, symptoms, and diagnosis of various diseases - Determine the appropriate medication for each disease condition - Know everything related to the effects of	Pituitary and Hypothalamic Agents	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	٢		Thyroid and Antithyroid drugs	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	٢		Adrenocorticosteroids	the blackboard PowerPoint slides	Oral and written theoretical exams, semi-

		therapeutic and offending drugs and contraindications for use		E-Learning	semester and semester
٤	٢	- How to treat the patient and educate him about his health	Sex hormones	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٥	٢	Acquiring skills - How to conduct and give qualitative seminars and lectures	Contraceptives	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٦	٢	- Skill in drug education for patients	Antidiabetic drugs	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٧	٢	- The skill of extracting the required information from approved sources	Antidiabetic drugs (cont.)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٨	٢	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	Osteoporosis	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٩	٢	- Implanting moral values for proper dealing with patients	NSAIDs	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٠	٢	Transferable general and	NSAIDs (cont.)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١	٢	qualifying skills other skills) related to employability and personal (development	DMARDs	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١٢	٢	- Performing practical experiments - Acquire skill in using computers - Giving the student confidence by discussing the seminars - Gain skill in writing reports - Gain driving skill - Acquire skill in dealing	Drugs used for gout	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١٣	٢		Chemotherapy	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١٤	٢		Anticancer drugs	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester
١٥	٢		Anticancer drugs (cont.)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi- semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Daily exams ٥ marks
- Daily preparation and classroom activities ٥ marks
- The midterm exam is ٢٠ marks
- The final exam is ٧٠ marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	Lipincott Illustrated Reviews Pharmacology 7rd Edition 2019 ,
Main references (sources)	Goodman & Gilman's The Pharmacological Basis - .of Therapeutics 13th edition 2018 Katzung & Trevor's Pharmacology Examination - and Board Review 12th Edition 2019 Rang & Dale's Pharmacology 9th Edition 2020 -
Recommended supporting books and references (scientific (...,journals, reports	British National Formulary
references , websites	FDA

Course Description

1. Course Name	
Organic Pharmaceutical Chemistry III	
2. Course Code	
451 PcOp3	
3. Semester/Year	
4th Class, 2nd Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name: Abbas abd-alridha mehihi	
Email: abbas-mehihi@alameed.edu.iq	
8. Course objectives	
Objectives of the study subject	To enable understanding mechanisms of drug action, including antibacterial, antifungal and antiviral agents, at molecular level, and the role of medicinal chemistry in the discovery and development of synthetic therapeutic agents. It also enables students to understand the concept of structure-activity relationship and its application in design and synthesis of new chemotherapeutic agents and hormone derivatives with potential

	biological activity.
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9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different	• β-Lactam antibiotics (Penicillins); • Cannizaro reaction (part I).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

		scientific techniques			-Conduct laboratory experiments
2	3 2	3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	β-Lactamase inhibitors - Cannizaro reaction (part II).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	3 2 3 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation	- Cephalosporins - Re-crystallization of benzoic acid.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	2	pharmaceutical tests in the design and evaluation	- Monobactams - Assay of ascorbic acid (known sample).	the blackboard PowerPoint	Reports, assignments, oral and written

	• 2	processes of the prepared drug. -Acquire skill in writing scientific reports		slides E-Learning	theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 3 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Aminoglycosides • Re-crystallization of ascorbic acid	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	• 3 • 2	Transferable general and qualifying skills (other skills related to employability and personal development).	• Chloramphenicol; • Assay of ascorbic acid (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	• 3 • 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student	• Tetracyclines; Macrolides; Lincomycins and Polypeptides; Antiviral agents (properties of viruses, viral classification, products). • Synthesis of Phenol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

8	• 3 • 2	confidence through discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• Sulfonamides (chemistry, nomenclature, • Synthesis of Phenol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3 • 2		• mechanism of action, resistance, toxicity, side effects, metabolism, protein binding, distribution and SAR); • Re-crystallization of Phenol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 3 • 2		• products; Sulfones. • Assay of phenol (known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 3 • 2		• Anti-neoplastic agents: Alkylating agents; Antimetabolites; Antibiotics • Assay of phenol (unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

					laboratory experiments
12	• 3 • 2		• Plant products; Miscellaneous compounds. • Synthesis of chlorbutanol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 3 • 2		• Hormones and related compounds • Re-crystallization of chlorbutanol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2		• Future anti-neoplastic agents; Monoclonal antibodies; • Synthesis of paracetamol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2		• Gene therapy of cancer. • Re-crystallization of paracetamol.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

					and semester -Conduct laboratory experiments
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams					
Editorial, reports, etc					
- Practical exam 20 - The midterm exam is 20 marks - The final exam 60 marks					
12. Learning and teaching resources					
methodology, if textbooks Required any		. Wilson and Gisvold Textbook of Organic medicinal and Pharmaceutical chemistry, Delgado JN, Remers WA, (Eds); 10th ed, 2004.			
Main references (sources)		- Organic Chemistry by McCurry; 5th ed.			
Recommended supporting books and references (scientific journals, reports)		Thomason learning; CA,USA; 2000			
references , websites					

Course Description

1. Course Name
Clinical Pharmacy II
2. Course Code
452 CpCp2
3. Semester/Year
4 th year, 2nd Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours Theory and 15 hours of Laboratory work
7. Name of course coordinator(s):
alihamid8282@gmail.com Ali Hameed Abd-Alhusaasin
8. Course objectives
1.The primary goal of clinical pharmacy is to provide basic information and general principles and give the student clinical scientific information that qualifies him to deal with patients cases in pharmacies and hospitals and to know the basic diseases, their causes, and the optimal solution for their treatment. 2- Introducing pharmacy students to hypertension disease and heart diseases and the various medications used to treat this diseases . 3- Introducing pharmacy students to respiratory system diseases, inflammatory diseases, diabetes, anemia, digestive and urinary system diseases, and the various medications used to treat them.

9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 1	- Cognitive outputs - The student should be able to know the causes, symptoms, and diagnosis of various diseases	• Hypertension • Introduction in clinical pharmacy	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 2 • 1	- - - Determine the appropriate medication for each disease condition -	• Ischemic heart disease	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		- - - -			
3	• 2 • 1	- Know everything related to the effects of therapeutic and offending drugs and contraindications for use - -	Heart Failure	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 2 • 1	- - How to treat the patient and educate him about his health.	Anemia	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	2 • 1	To know the causes that lead to the occurrence of the disease and the	Asthma	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	2		Chronic obstructive pulmonary disease (COPD)	the blackboard PowerPoint	Reports, assignments, oral and written theoretical

	1	techniques used in its treatment, whether medically or surgically		slides	examinations, semi-semester and semester -Conduct laboratory experiments
7	2 1	Knowledge of the disease and its physiological causes	Diabetes mellitus Diabetic	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	2 1	Skill of drug education for patients and dealing with patients	Peptic ulcer disease	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	2 1		Tuberculosis	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	2 1		Infective meningitis	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester

		Skill of extracting the required information from its approved sources			and semester -Conduct laboratory experiments
11	• 2 • 1		Rheumatoid arthritis (RA)	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	• 2 • 1		Osteoporosis	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 2 • 1		Gout and hyperuricemia	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 2 • 1	Thinking skills through analysis, evaluation and extraction of ideas	Urinary tract infection (UTI)	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

					-Conduct laboratory experiments
15	• 2 • 1	Instilling ethical values for proper dealing with patients Providing medical advice to patients -	osteoarthritis (OA)	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks
- The final exam 60 marks

12. Learning and teaching resources

Required textbooks (methodology, if any)	1.Applied Therapeutics (The clinical use of drugs) 2.Pharmacotherapy (Hand book 2011) 3.Clinical pharmacy and Therapeutics (Roger Walker)
Main references (sources)	1.Clinical pharmacy and Therapeutics (Cate whittleiser) 2. Clinical researches in pup med - 3. Review articles in pup med
Recommended supporting books and references (scientific journals, reports,...)	British National Formulary
references , websites	FDA

Course Description

١. Course Name	
Toxicology	
٢. Course Code	
453PtGt	
3. Semester/Year	
4th Class, 2nd Semester	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
٣٠ hours Theory and ٣٠ hours Laboratory	
7. Name of course coordinator(s):	
Name: Haider falih shamik Email : hasaedi@alameed.edu.iq	
٨. Course objectives	
Objectives of the study subject	To study the principle of exposure to chemicals, various toxic physical elements, environmental factors, their sources, mechanisms of toxicity, and their danger to humans, so that students can understand the measures required to protect living organisms against suspected toxic risks, how to deal with them with caution, and become familiar with the most important beneficial

	treatment methods for all toxic elements and compounds.
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9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 2	Cognitive outputs 1- How to deal with scientific laboratory equipment 2- Learning using different scientific techniques 3- Analysing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes and how can	• Introduction: general consideration; host factor, environmental Factors of toxic effects • Introduction of general toxic agents	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 2	Cognitive outputs 1- How to deal with scientific laboratory equipment 2- Learning using different scientific techniques 3- Analysing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes and how can	• Carcinogenesis	the blackboard PowerPoint	Reports, assignments, oral and

	• 2	inhibition of their toxic effects • 5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	• Introduction about using of scientific laboratory equipments	slides E-Learning	written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۳	• ۲ • ۲	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug. -Acquire skill in writing scientific reports	• Target organs and systemic toxicology; of liver • Toxic agents on hepatocytes	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۴	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Target organs and systemic toxicology; Respiratory system • Nicotine toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۵	• ۲ • ۲	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Target organs and systemic toxicology; kidney • Cyanide toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

		Transferable general and qualifying skills (other skills related to employability and personal development).			experiments
٦	• ٢ • ٢	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	• Target organs and systemic toxicology; skin • Pollutants toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٧	• 2 • 2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	• Target organs and systemic toxicology; nervous system • House washing toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٨	• ٢ • 2		• Target organs and systemic toxicology; blood • Snake venom toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

9	• 2 • 2	• Toxic substances: Food additive and contaminants • Hydrocarbons toxicity.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 2 • 2	Toxic substances: Pesticides • Toxic agent on renal system	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 2 • 2	• Toxic substances: Metals • Pesticide toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	• 2 • 2	• Toxic substances : Radiation and radioactive materials • Toxicity of	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

			some plants		experiments
١٣	• 2 • ٢		• Environmental toxicology: Air pollution, water and soil pollutants • Toxicity of some preservatives in canned foods	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٤	• ٢ • 2		• Gases (Tear gas, Pepper spray) • Toxicity of scorpion venom	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٥	• ٢ • 2		• Cyanide (H₂S). • Toxicity of carbon monoxide	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

١١. Course evaluation	
Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc	
- Practical exam ٢٠ - The midterm exam is ٢٠ marks - The final exam 60 marks	
12. Learning and teaching resources	
methodology, if textbooks Required any	<i>Casarett and Doull, Toxicology</i>
Main references (sources)	<i>the Basic Science of Poisons;</i> <i>latest edition</i> -
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Course Description

1. Course Name
Industrial Pharmacy I
2. Course Code
454 PIp1
3. Semester/Year
2nd semester/ forth year
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours theory and 30 hours practices
7. Name of course coordinator(s):
Name: hassan albassam dr.hassanalbassam80@gmail.com
8. Course objectives
The subject aim to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. This fundamental coarse provide the required principles to integrate knowledge of Pharmaceutical Technology in preformulation of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2		• Principles of pharmaceutical processing; • Introduction in industrial pharmacy and pre-formulation.		
2	• 3 • 2	Cognitive outputs 1 mechanisms of mixing; mixing equipments; batch and continuous mixing; mixer selection; solid mixing theory and particulate solid variables; forces and mechanisms	• Mixing; fluid mixing; flow characteristics • Effervescent granules: Preparation and characterization	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
3	• 3 • 2	2- types of mills; factors influencing milling; selection of mill techniques; specialized drying methods.	• Milling; pharmaceutical application • Flow properties and rheology of granules.		
4	• 3 • 2	3- drying of solids, and classification	• Size measurement methods; • Flow properties and rheology of granules(cont)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

5	• 3 • 2	of dryer; specialized drying methods	• Drying: definition; purpose; humidity measurement • Tablet dosage form: Preparation and characterization		
6	• 3 • 2	non-sterile and sterile operations; integrity testing; equipment's and systems (commercial and laboratory). Methods of sterilization	• Theory of drying • Tablet dosage form: Preparation and characterization	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	• 3 • 2	(thermal and non-thermal); mechanisms; Evaluation	• Theory of drying (cont) • Review and tutorial		
8	• 3 • 2		• Clarification and filtration. • Evaluation of tablets	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
9	• 3 • 2		• Theory; filter media; filter aids; • Evaluation of tablets		
10	• 3 • 2		• Selection of drying method • Preparation of children aspirin by wet granulation method		
11	• 3 • 2		• Sterilization • Sustained release dosage forms: Preparation and characterization	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
12	• 3 • 2		• Validation of methods; microbial death kinetics • Sustained release dosage forms: Preparation and characterization		
13	• 3 • 2		• Pharmaceutical dosage forms	the blackboard	Oral and written

			Coating techniques of tablets.	PowerPoint slides E-Learning	theoretical exams, semi-semester and semester
14	3 2		- Sterile products; development; formulation; - Coating techniques of tablets.		
15	3 2		- Production; processing; quality control - Review and tutorial		

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc
- The mid-term exam 20 marks - Practical exam 20 marks - The final exam 60

12. Learning and teaching resources

Required textbooks (methodology, if any)	<i>The Theory and Practice of Industrial Pharmacy by Leon Lachman et al</i>
Main references (sources)	Aulton's Pharmaceutics The Design and Manufacture of Medicines
Recommended supporting books and references (scientific journals, (...), reports	
references , websites	BNF, BP and USP

Course Description

١. Course Name
Communication Skills
٢. Course Code
455 CpCs
3. Semester/Year
4th Class, 2nd Semester
4. Date this description was prepared
2/9/2024
٥. Available attendance forms
Physical attendance
6, Total academic hours
30 hours Theory
7. Name of course coordinator(s):
Name: Ass.Prof. Dr. Abdullah Hameed Maad Email: dr.ph.abdullah.maad@gmail.com
٨. Course Objectives
Communication skill is one of the missions of pharmacy care practice, aims to develop a conventional relationship between pharmacist and patients, in which information is exchanged, hold in confidence and used to optimize patient care through appropriate drug therapy. This course is intended to pharmacist provide better care to patients.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	2	- Communication Skills: Nonverbal Type of Communication - Identify and interpret nonverbal cues in healthcare settings.	• Principles and Elements of Interpersonal Communication	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٢	2	- Understand the impact of body language, facial expressions, and eye contact on patient interactions. - Barriers to Communication	• Nonverbal type of communication	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٣	2	- Recognize common barriers to effective communication in healthcare, including language, cultural differences, and physical barriers.	• Barriers to communication	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٤	2	- Develop strategies to overcome these barriers and enhance understanding.	• Listening and empathic responding during communication	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations

٥	2	- Listening and Empathic Responding During Communication - Practice active listening techniques to fully understand patient concerns.	• Assertiveness	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٦	2	- Demonstrate empathic responding to support patient emotional well-being.	• Interviewing and assessment	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٧	2	- Assertiveness - Define assertiveness and its importance in healthcare communication.	• Helping patients to manage therapeutic regimens	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٨	٢	- Apply assertive communication techniques to advocate for patient needs effectively. - Interviewing and Assessment - Conduct patient interviews that gather comprehensive health information.	• Patient counseling; counseling check list; point-by-point discussion; counseling scenario	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
٩	٢	- Utilize effective questioning and listening techniques for accurate patient assessment.	• Medication safety and communication skills	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
١٠	٢	- Helping Patients to Manage Therapeutic Regimens - Educate patients on their therapeutic regimens in an understandable manner.	• Strategies to meet specific needs	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
١١	٢	- Empower patients to take an active role in their health management.	• Communicating with children and elderly about medications	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
١٢	٢	- Patient Counseling;	• Communication skills and inter-	the blackboard	Reports, assignments,

		Counseling Checklist; Point-by-Point Discussion; Counseling Scenario	professional collaboration	PowerPoint slides	oral and written theoretical examinations
١٣	٢	- Execute patient counseling following a structured checklist. - Engage in point-by-point discussions to ensure patient understanding.	• Electronic communication in healthcare	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
١٤	٢	- Simulate counseling scenarios to practice and refine counseling skills. - Medication Safety and Communication Skills	• Ethical behavior when communicating with patients	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations
١٥	٢	- Communicate medication instructions clearly to minimize errors. - Emphasize the importance of medication safety practices in patient discussions. - Strategies to Meet Specific Needs - Tailor communication strategies to meet the diverse needs of patients. - Address specific challenges in communicating complex medical information. - Communicating with Children and Elderly About Medications - Adjust communication methods to effectively engage with children and	• Travel health and Health insurance	the blackboard PowerPoint slides	Reports, assignments, oral and written theoretical examinations

		the elderly. - Consider the cognitive and emotional development stages when discussing medications. - Communication Skills and Inter-Professional Collaboration - Foster effective communication within healthcare teams to improve patient care. - Understand the role of inter-professional collaboration in healthcare settings. - Electronic Communication in Healthcare - Navigate the benefits and challenges of electronic communication in patient care. - Ensure confidentiality and professionalism in digital communications. - Ethical Behavior When Communicating with Patients - Uphold ethical standards in all patient communications. - Recognize and respect patient autonomy and informed consent. - Travel Health - Provide travelers with health advice			
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		and precautions specific to their destinations. - Discuss common travel-related health risks and preventive measures. - Health Insurance - Explain health insurance benefits, coverage, and procedures to patients. - Assist patients in understanding how insurance impacts their healthcare options and decisions. - These outcomes aim to equip healthcare professionals with the skills necessary to communicate effectively with patients, colleagues, and other stakeholders, addressing the complexities and diversity of healthcare settings.			
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams Editorial, reports, etc					
• Mid term exam 30 marks • Final examination 70 marks					
12. Learning and teaching resource					
Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice					

Course Description

1. Course Name
Organic Pharmaceutical Chemistry IV
2. Course Code
557 PcOp4
3. Semester/Year
5th Class, 1st Semester
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
45 hours Theory and Laboratory
7. Name of course coordinator(s):
Name : abbas abd-alridha mehihi
Email: abbas-mehihi@alameed.edu.iq
8. Course objectives
To give the students knowledge and experience in pro-drug and hormones as part of their medicinal and pharmaceutical field. It includes classification, synthesis, biotransformation and/or formulation of certain drugs to improve their action as well as to avoid some side effect.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	3	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using	• Basic concept of prodrugs; Covalent bonds (cleavable);	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	3		• Prodrugs of functional groups	the blackboard PowerPoint slides	oral and written theoretical examinations, semi-semester

		them in the drug design and formulation processes.		E-Learning	and semester -Conduct laboratory experiments
3	3	5- The ability to write and draft pharmaceutical laboratory reports on the results of scientific examinations and tests and the ability to deduce the results and their effects from the test.	Types of prodrugs.	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	3	deduce the results and their effects from the test. Acquiring skills - Preparing modern designs	Chemical delivery systems	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	3	for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug.	Polymeric prodrugs	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	3	-Acquire skill in writing scientific reports	Types and structure of polymers; Cross-linking reagents.	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

7	• 3	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Drug targeting.	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	• 3	- Instilling moral values for proper dealing with patients Transferable general and qualifying skills (other skills related to employability and personal development).	• Project.	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	• 3	- Performing practical experiments	• Combinatorial chemistry; Peptides and other linear structures	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	• 3	- Acquiring skill in using computers - Giving the student confidence through discussing seminars	• Drug like molecules; Support and linker	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 3	- Acquire skill in writing	• Solution-phase combinatorial chemistry.	the blackboard PowerPoint slides	oral and written theoretical examinations, semi-semester

		reports - Acquiring driving skills - Acquiring skill in dealing		E-Learning	and semester -Conduct laboratory experiments
12	• 3		Detection, purification and analgesics; Encoding combinatorial libraries	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	• 3		High-throughput screening	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3		Virtual screening;	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3		Chemical diversity and library design.	the blackboard PowerPoint slides E-Learning	oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

-The midterm exam is 30 marks

- The final exam 70 marks

12. Learning and teaching resources

methodology, if textbooks Required any

Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry; Delgado JN, Remers WA, (Eds.); 10th ed., 2004.

Main references (sources)

Applications of absorption spectroscopy of organic compounds by Dyer JR. 3. Organic Chemistry by McMurry; 5th ed; Thomson learning CA, USA 2000.

Recommended supporting books and references (scientific journals, reports)

references , websites

Description Course

1. Course Name	
Industrial Pharmacy II	
2. Course Code	
512	
3. Semester/Year	
1st semester/ fifth year	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours theory and 30 hours practices	
7. Name of course coordinator(s):	
Name:	
8. Course objectives	
	The course enable technical setup for coordination of standards for formulation of typical dosage forms and the principles needed to learn mass production of different pharmaceutical dosage forms. The syllabus includes different dosage forms like tablets, capsules, aerosols, emulsion, etc, besides the advanced techniques like enteric coating and micro-encapsulation.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1 Tablets of different types represent collectively the most commonly encountered type of dosage form. 2- The release of the active pharmaceutical ingredient is a key product attribute and can be controlled by the formulation to achieve immediate release, delayed release or prolonged release of the drug	• Pharmaceutical dosage forms: Tablets; role in therapy; advantages • . Direct compression method for preparation of tablets	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	• 3 • 2		• disadvantages; formulation; properties; evaluation; machines • Direct compression method for preparation of tablets	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
3	• 3 • 2	3- In the manufacturing of tablets, a series of unit operations are normally used, including mixing 4-Differentiate between hard and soft gelatin capsules	• used in tableting; quality control; problems; granulation, and methods of production; excipients, and types of tablets • Wet granulation method for preparation of tablets.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

4	3	Describe the types of formulations that are used in hard versus soft gelatin capsules Differentiate between the various types of modified-release dosage forms	- Tablet coating; principles; properties; equipments; processing; types Of coating (sugar and film); quality control, and problems. - Wet granulation method for preparation of tablets.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
5	3	Compare and contrast advantages and disadvantages of the various types of modified-release dosage forms Define the various types of oral and topical liquid dosage forms	- Capsules: Hard gelatin capsules; materials; production; filling - equipments; formulation; special techniques. - Dry granulation method for preparation of tablets	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
6	3	List the advantages and disadvantages of using liquid dosage forms Describe the commonly used approaches for the preparation of stable suspensions	- Soft gelatin capsules: Manufacturing methods; nature of capsule shell and content; processing and control; stability. - Dry granulation method for preparation of tablets	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	3 2	Compare and contrast the following emulsification theories: surface tension, oriented-wedge, and interfacial film Describe different types of ointment bases. Define and differentiate ointments, creams, gels, lotions, pastes, and jellies	- Micro-encapsulation; core and coating materials; stability; equipments and methodology. - Review and tutorial	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	3 2		Modified (sustained release) dosage forms; theory and		

		Define suppositories and describe factors influencing drug absorption Differentiate different types of inhalation devices. Effective drug delivery to the lungs is dependent on the formulation, the delivery device and the patient.	concepts; evaluation and testing; formulation. Evaluation of tablets		
9	3		- Liquids: Formulation; stability and equipments. - Evaluation of tablets	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
10	3		- Suspensions: Theory; formulation and evaluation - Capsules dosage form	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
11	3		Emulsions: Theory and application; types; formulation; equipments And quality control. Capsules dosage form	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
12	3		Semisolids: Percutaneous absorption; formulation; types of bases(vehicles) preservation; processing and evaluation Preparation and evaluation.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
13	3 2		- Suppositories: Rectal absorption; uses of suppositories; types of bases; - Parenteral dosage forms	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
14	3 2		manufacturing processes; problems and	the blackboard PowerPoint	Oral and written theoretical

			evaluation of sup. • Parenteral dosage forms	slides E-Learning	exams, semi-semester and semester
15	• 3 • 2		• Pharmaceutical aerosols: Propellants; containers; formulation; types And selection of components; stability; manufacturing; quality control and testing. • Review and tutorial	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- The mid-term exam 20 marks
- Practical exam 20 marks
- The final exam 60

12. Learning and teaching resources

Required textbooks (methodology, if any)	<i>The Theory and Practice of Industrial Pharmacy by Leon Lachman et al</i>
Main references (sources)	Aulton's Pharmaceutics The Design and Manufacture of Medicines
Recommended supporting books and references (scientific journals, (...), reports	
references , websites	BNF, BP and USP

Course Description

١. Course Name	
Applied Therapeutics I	
٢. Course Code	
559 CpAt1	
3. Semester/Year	
First Semester / Fifth stage	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
30 hours	
7. Name of course coordinator(s):	
Name: ali hamid abd-alhassain Email: alihamid8282@gmail.com	
٨. Course objectives	
Objectives of the study subject	1 -The primary goal of therapeutics is to give the student scientific lectures that qualify him to know the treatment of clinical conditions and how to deal with basic diseases and their common symptoms, as well as providing basic information and general principles upon which the optimal use of medications in treating patients is based. 2 -Introducing pharmacy students to clinical diseases that affect the heart, how to deal with them, and identifying the optimal solution to treat them. 2 -Identify diseases related to the urinary system, how to deal

	with them, and the best solution to treat them. 3 -Identify diseases related to the nervous system, how to deal with them, and the optimal solution to treat them. 4- Study of diseases related to the digestive system and what groups of medications are used to treat these diseases.
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9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	٢	Cognitive outputs - The student should be able to know the causes, symptoms, and diagnosis of various diseases - Determine the appropriate medication for each disease condition - Know everything related to the effects of therapeutic and offending drugs and	Acute renal failure (ARF) & Hemodialysis and peritoneal dialysis	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
٢	٢		Chronic renal failure (CRF) Acid – base disorders	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٣	٢		Disorders of fluid and electrolytes	the blackboard PowerPoint slides	Oral and written theoretical exams, semi-

		contraindications for use - How to treat the patient and educate him about his health		E-Learning	semester and semester
٤	٢		Benign prostatic hyperplasia (BPH)	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٥	٢	Acquiring skills - How to conduct and give qualitative seminars and lectures - Skill in drug education for patients - The skill of extracting the required information from approved sources	Urinary incontinence and pediatric enuresis	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٦	٢		Acute coronary syndrome	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٧	٢	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Implanting moral values for proper dealing with patients	Arrhythmias	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٨	٢		Thrombosis	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
٩	٢	Transferable general and qualifying skills other skills related) to employability and personal .(development - Performing	Stroke	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٠	٢		Inflammatory bowel diseases	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١	٢	practical experiments - Acquire skill in using computers - Giving the student confidence by discussing the seminars - Gain skill in writing reports - Gain driving skill - Acquire skill in dealing	Liver cirrhosis	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٢	٢		Epilepsy and status epilepticus	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٣	٢		multiple sclerosis & Headache disorders	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٤	٢		Parkinson's disease	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
١٥	٢		Pain management	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester

١١. Course evaluation

Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Daily exams ٥ marks
- Daily preparation and classroom activities ٥ marks
- The midterm exam is ٢٠ marks
- The final exam is ٧٠ marks

12. Learning and teaching resources

Required textbooks (methodology, (if any

Pharmacotherapy hand book 7th Edition

Main references (sources)	Roger Walker, Clive Edwards (eds), - Clinical Pharmacy & Therapeutics , Barbara - G.Wells & Joseph T. Diriro, Pharmacotherapy hand book 7th Edittion
Recommended supporting books and references (scientific journals, (...,reports	British National Formulary
references , websites	FDA

Course Description

1. Course Name	
Clinical Chemistry	
2. Course Code	
560 ClCc	
3. Semester/Year	
5th Class, 1st Semester	
4. Date this description was prepared	
6-2-2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory (3hrs/wk) - and 30 hrs practical (2hrs/wk)	
7. Name of course coordinator(s):	
Name : rithab ibrahim mohammed E-mail: risamawi@alameed.edu.iq	
8. Course objectives	
Objectives of the study subject	In addition to introducing the student to more advanced topics in clinical chemistry, this course will equip the student with the clinical and practical skills and knowledge necessary for conducting and interpreting the clinical laboratory tests in the clinical chemistry laboratory sections. These topics include the evaluation of liver function, renal function, and some ion metabolism, the assessment of acid-base disturbances, clinical endocrinology, and other important topics in clinical chemistry
9. Teaching and learning strategies	

Education strategies	Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy -
Learning strategies	Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy -

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	3	Cognitive outputs Study the required laboratory tests and interpret the results of cellular metabolism disorder For	Liver function: Jaundice: including the types, Pathogenesis and Differentiation	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	3	carbohydrates, disturbance of plasma lipids and lipoproteins, liver function test, disorders of Kidney functions. Plasma enzymes in diagnosis.	Hepatitis: Acute and Chronic, Etiology, Pathogenesis and Pathology	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	3	Hypothalamus and pituitary gland. Adrenal gland. The	Cirrhosis: Etiology, Postnecrotic, Alcoholic, Metabolic, Pathology, Morphology (Macronodular,	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations,

		device Reproductive. Pregnancy and infertility. Thyroid function tests. Plasma proteins.	Micronodular, Mixed), complications		semi-semester and semester -Conduct laboratory experiments
4	3		Portal Hypertension: Types including non- cirrhotic portal fibrosis and Manifestations	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	3	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	Tumors of Liver: hepatocellular and metastatic carcinoma, tumor markers	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
6	3	Transferable general and qualifying skills (other skills related to employability and personal development).	Concept of hepatocellular failure	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	3	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through	Diseases of the gall bladder: Cholecystitis, Cholelithiasis, Carcinoma	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory

		discussing seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing			experiments
8	3		Renal function: Renal hemodynamics and glomerular filtration. Physiological basis of renal function tests	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	3		Renal tubular function, Regulation of renal function	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
10	3		. Endocrinology: Thyroid, parathyroid, adrenal cortex and medulla, their structural details, functional mechanisms, hypophysis cerebri, cell types secretion and their functions, hypophyseal portal circulation, common endocrine disorders	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	3		Female reproductive system: Ovary, ovarian stroma, primary and secondary graafian follicles, functions of various constituents and structural details of graafian follicles, atretic	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester

			follicles, corpus luteum and its functions, corpus albicans. Oviducts, uterus, arterial supply of uterus, cyclic changes in uterine endometrium, fertilization, vagina, female external genitalia and mammary glands.		-Conduct laboratory experiments
12	3		Male reproductive system: Testes, spermatogenesis, spermatozoon, cycle of seminiferous epithelium, sertoli cells, interstitial tissue Leydig cells, histophysiology of testes, epididymus, vas deferens, prostate, seminal vesicles, penis.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
13	3		Various endocrine glands, their location, relations, blood supply, nerve supply and lymphatic drainage. Clinical manifestations of common endocrine disorders.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	3		acid base balance 1. Acid-base balance and electrolytes facts: 2. Definition of acid-base balance: 3. Acidosis (Acidemia): 4. Alkalosis (Alkalemia): 5. pH significance our life: 6. The pH of different body fluids:	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

15	3		7. Buffer systems of the acid-base balance: 8. Functions of the buffer system: 9. Summary of the different buffer systems in acid-base balance: 10. Renal buffering system: 11. Carbonic acid-bicarbonate buffering system: 12. Protein buffering system: Pulmonary role in the acid-base balance:	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

Practical exam 20 -
The midterm exam is 20 marks -
The final exam 60 marks -

12. Learning and teaching resources

Clinical Chemistry & Metabolic Medicine, Crook, 8th, 2013.	Required textbooks (methodology, if any(
Clinical Chemistry, Kaplan, 5th, 2009.	Main references (sources(
lippincott's biochemistry 7th, 2017	Recommended supporting books and references (scientific journals, reports)
	references , websites

Course Description

1. Course Name	
Clinical laboratory Training	
2. Course Code	
561 CICI	
3. Semester/Year	
5 th Class, 1st Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Attendance	
Number of academic hours (total) / number of units (total)	
60 hours/ 3 units	
7. Name of course coordinator(s):	
Name : Rithab ibrahim mohammed	
Email: _risamawi@alameed.edu.iq	
8. Course objectives	
Objectives of the study subject	It provides general information about the biochemical basis of disease and about the principles of laboratory diagnosis; it supplies specific guidance on the clinical value of chemical investigations, indicating their range of application and limitations as well as relating results of laboratory tests to the process of clinical diagnosis and management as these might applied to individual patients.

9. Teaching and learning strategies

Education strategies

- Brainstorming strategy
- Teamwork strategy
- Discussion strategy
- Case study strategy
- Inductive teaching strategy
- Concept mapping strategy
- Practical field training strategy
- Self-learning strategy
- E-learning strategy

Learning strategies

- Study strategy
- Conclusion strategy
- Spaced practice strategy
- Strategy for switching between ideas
- Examples strategy

10. Required learning outcomes

- Knowing the types of laboratory tests and using them to accurately diagnose medical conditions.
- It also aims to interpret laboratory results on scientific grounds that are compatible with the patient's clinical condition, while following diagnostic steps sequentially to diagnose the disease.
- Defining diagnostic medical laboratories and distinguishing them from other laboratories, such as research and experimental laboratories.
 - Identifying and classifying the departments of the diagnostic medical laboratory.
- Defining biological safety and its levels, identifying biological risks and how to deal with them by identifying the hazard, risks, and threats resulting from working in biologically hazardous places, such as hospitals or medical laboratories, with an explanation of the role of guidelines and following them to reduce risks and epidemics.
- Teaching the primary study student, the fifth stage, basic sciences and laboratory analyzes related to blood diseases, and training students on linking laboratory results to clinical signs, and how to derive and interpret the results.

11. Course structure

Week	Hours		Name of the unit or topic	Learning method	Evaluation method
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1	4	Medical Laboratory Management, Biosafety and Biosecurity, and Laboratory results interpretation.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
2	4	Diagnostic test basics, collecting & transporting specimens, venipuncture, urine specimen, stool specimen.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
3	4	Serological tests: General urine examination, urine specimen collection.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
4	4	Serological tests: - VDRL, ASO- Titer, Hepatitis tests. - C-reactive protein test, Rheumatic factor test, Rose-bengal test, Typhoid fever test(Widal test), Pregnancy Test.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
5	4	Medical microbiology: - Culture media, Culture Methods, biochemical test & reactions. - Staining methods.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
6	4	Medical microbiology: Antibacterial susceptibility testing, Minimum inhibitory concentration, bacterial disease and their laboratory diagnosis.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.

7	4	Clinical Immunology: Introduction in ELISA technique, Principle and types of ELISA, types of enzymes in ELISA, Distinctive features of the substrate, Application of ELISA.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
8	4	Molecular study: molecular diagnostic definition, DNA or RNA extraction and determination.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
9	4	Polymerase Chain Reaction (PCR)	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
10	4	Gel Electrophoresis	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
11	4	Clinical chemistry : Blood glucose tests, lipid profile	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
12	4	Clinical chemistry : urea and creatinine , bilirubin, total protein test.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
13	4	Clinical chemistry : lactate dehydrogenase, inorganic phosphate & calcium.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.
14	4	Hematology: body fluids and Components of blood.	The blackboard Power Point slides	Reports, assignments, oral and written theoretical

			E-Learning	examinations, and semester exam.
15	4	Hematology: Automated cell counter, Blood typing, Coombs test, Bleeding time, ESR. RBC count, Hb, PCV, RBC indices, WBC count, Platelets count.	The blackboard Power Point slides E-Learning	Reports, assignments, oral and written theoretical examinations, and semester exam.

11. Course evaluation

Practical exam	The midterm exam is	The final exam
5 marks	25 marks	70 marks

12. Learning and teaching resources

Methodology, if textbooks Required any	Don't found
Main references (sources)	- WHO Collaborating center for Applied Biosafety program and research, Lab. Biosafety principle, and practice, an instruction guide for Biosafety training. - F.J.Baker, R.E.Silverton. Introduction to medical laboratory technology 7th ed 1998. - Laboratory Quality management system Handbook, WHO,CLSI and CDC. - International health regulations (2005) , Second edition. - Defining, Establishing and Verifying reference intervals in the clinical laboratories approved Guideline -Third edition C28-A3,Vol.28; No. 30. - laboratory manual and workbook in microbiology application to patient care

	- review of medical microbiology and immunology "warren levinson". - "Pavl A. Granato; Verna Morton and Josephine A. Morello" - Immunology, Kuby, Last edition. Owen, Punt, and Stratford. -Molecular Diagnostics. 3rd ed. Elsevier science, 2016. Web. 15 Oct. 2022. - M.J.McPherson (ed.),. P.Quirke (ed.), G.R.Taylor (ed.), PCR. Vol:1, A Practical Approach. - Pranab Dey, Basic and Advanced Laboratory Techniques in Histology and Cytology. - Patrinos, George, Wilhelm Ansorge, and Phillip Danielson. - Clinical biochemistry and metabolic medicine. - A laboratory guide to clinical hematology. - Laboratory hematology practice Kandice kottke marchant.
references , websites	- MedlinePlus - Health Information from the National Library of Medicine - Health line

Course Description

1. Course Name	
Clinical Toxicology	
2. Course Code	
562 PtCt	
3. Semester/Year	
5th Class, 1st Semester	
4. Date this description was prepared	
2/9/2024	
5. Available attendance forms	
Physical attendance	
6. Number of academic hours (total) / number of units (total)	
30 hours	
7. Name of course coordinator(s):	
Name: Haider falih shamik Email: hasaedi@alameed.edu.iq	
8. Course objectives	
Objectives of the study subject	1- The primary goal of Toxicology is to provide students the ability to understand the concept of toxicology by providing them with the principles and skills required to deal with the toxicity of chemicals and drugs in clinical settings. 2- Also, it provides the students the ability to correlate signs and symptoms of toxicity with the analytical data, and know how to establish preventive and therapeutic measures for poisoning cases. 3- Introducing pharmacy students to the different drug groups toxicity that affect the body's different system and learn different strategies that used in treating these toxicity.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2 • 2	Cognitive outputs 1- the student should be know the concept of toxicology science. 2-know the causes, symptoms, and diagnosis of drug toxicity . 3- How to treat patient with drug toxicity and trying to educate him about right dose and use of drug.	• Introduction to toxicology • Laboratory principles of Toxicology .	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
2	• 2 • 2	Acquiring skills - Skill in drug education for patients. - The skill of treating with drug toxicity and how taken the required information from approved sources	• Beta-blockers drugs toxicity. • Case on Acetaminophen poisoning	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
3	• 2	-Acquire skill in writing scientific reports	• Calcium channel blockers toxicity	the blackboard PowerPoint	Reports, assignments, oral and

	• 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas - Instilling moral values for proper dealing with patients	• Case on Acetaminophen poisoning	slides E-Learning	written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
4	• 2 • 2	Transferable general and qualifying skills (other skills related to employability and personal development). - Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars - Acquire skill in writing reports -	• ACEI toxicity • Salicylate: evaluation of urine analysis	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
5	• 2 • 2		• Antiarrhythmic drug toxicity • Salicylate: evaluation of urine analysis	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
6	• 2 • 2		• CNS stimulant toxicity • Digoxin toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
7	• 2 • 2		• NSAID toxicity	the blackboard PowerPoint	Reports, assignments, oral and

			• Cyanide toxicity	slides E-Learning	written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
8	• 2 • 2		• Vitamin toxicity • Cyanide toxicity	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
9	• 2 • 2		• Anticholinergic drug toxicity. • Evaluation of cases of toxicity with antiparkinsonian drugs	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
10	• 2 • 2		• hypoglycemic drugs toxicity • Evaluation of cases of toxicity with antiparkinsonian drugs	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
11	• 2		• Tricyclic antidepressants toxicity	the blackboard PowerPoint	Reports, assignments, oral and

	• 2		• Phenothiazine derivatives; barbiturates.	slides E-Learning	written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
12	• 2 • 2		• Drug of Abuse: Opioids; Cocaine • Evaluation of drug toxicity in human.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
13	• 2 • 2		• Chemical and Environmental Toxins. • Evaluation of drug toxicity in human.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
14	• 2 • 2		Botanicals and plants-derived toxins; Toxic Plants. • Cases on toxicity with foods and dietary supplements	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
15	• 2		• Botanicals and plants-derived toxins; Poisonous	the blackboard PowerPoint	Reports, assignments, oral and

	2		- mushrooms - Cases on toxicity with foods and dietary supplements	slides E-Learning	written theoretical examinations semi- , semester and semester -Conduct laboratory experiments
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11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- Practical exam 20 marks.
- The midterm exam is 30 marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	<i>Gossel TA, Bricker TD, (Eds.); Principles of Clinical Toxicology; latest Edition</i>
Main references (sources)	Casarett & Doull's -Toxicology : The Basic Science of Poisons: 9 th Edition.
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Description Course

١. Course Name	
pharmacoeconomic	
٢. Course Code	
564 CpPm	
3. Semester/Year	
5th Class, 2nd Semester	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
30 hours Theory	
7. Name of course coordinator(s):	
Name: Ali hamid abd-alhussain Email: alihamid8282@gmail.com	
٨. Course objectives	
Objectives of the study subject	The present course will give students the basic understanding of the tools needed to assess the costs and outcomes of medications and pharmaceutical care services. It will enable participants to evaluate the pharmacoeconomic and quality of life literature for the purpose of rational decision-making. Students will be exposed to the drug-focused approaches to pharmacoeconomic research and the fundamentals of quality of life research.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2	Cognitive outputs This section provides an introduction to the course and defines the fundamental concepts in the field of pharmacoeconomics.	• Course overview & basic principle of pharmacoeconomics.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	2	In this section, you will learn how to evaluate the costs of medications and pharmaceutical services.	• Cost analysis part 1	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
3	• 2	In this section, you will learn how to evaluate the costs of medications and pharmaceutical	Cost analysis part 2 •	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

		services.			and semester -Conduct laboratory experiments
ε	2	In this section, you will learn how to evaluate the costs of medications and pharmaceutical services.	• Cost analysis part 3	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
ο	• 2	This section focuses on assessing the cost-effectiveness of drugs and treatments.	Cost effectiveness analyses (CEA).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
ϛ	• 2	you will learn how to evaluate the benefits associated with the use of drugs and treatments in this section. This section emphasizes estimating benefits versus costs and how to make decisions based on that.	Cost utility analyses (CUA)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
ϣ	• 2	Critical assessment	• Cost-benefit analysis (CBA)	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

٨	• 2	of economic evaluation part one	You will learn how to critically evaluate economic studies and their assessments in this section.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
٩	• 2	Critical assessment of economic evaluation part 2	You will learn how to critically evaluate economic studies and their assessments in this section.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٠	• 2	Drug-focused versus disease-focused framework for Conducting pharmacoeconomic analyses.	In this part, you'll be introduced to the differences between drug-focused and disease-focused approaches in pharmacoeconomic research.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١١	• 2	Introduction to epidemiology.	This section acquaints you with the fundamentals of epidemiology and how to apply them in the field of pharmaceutical care.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
١٢	• 2	Project presentation.	• Students will have the opportunity to present a project	the blackboard PowerPoint slides	Reports, assignments, oral and written

			related to pharmacoeconomic topics studied during the course.	E-Learning	theoretical examinations, semi-semester and semester -Conduct laboratory experiments
۱۳	• 2		Students will have the opportunity to present a project related to pharmacoeconomic topics studied during the course.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

۱۱. Course evaluation

Distribution of the grade out of ۱۰۰ according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams
Editorial, reports, etc

- The midterm exam is ۳۰ marks
- The final exam 70 marks

12. Learning and teaching resources

methodology, if textbooks Required any	Students will have the opportunity to present a project related to pharmacoeconomic topics studied during the course.
Main references (sources)	Students will have the opportunity to present - a project related to pharmacoeconomic topics studied during the course.
Recommended supporting books and references (scientific journals, reports)	

references , websites	
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Course Description

١. Course Name
Applied Therapeutics
٢. Course Code
565 CpAt2
3. Semester/Year
Second semester/ fifth year
4. Date this description was prepared

2/9/2024					
◦. Available attendance forms					
Physical attendance					
Number of academic hours (total) / number of units (total)					
30 hours theory / 2 units					
7. Name of course coordinator(s):					
Name: ali hamid abd-alussain Email: alihamid8282@gmail.com					
^.. Course objectives					
To improve the knowledge and practice of students in the clinical application of drugs in the treatment of diseases and disorders in different organ systems as well as their causes and diagnosis, and enable students to integrate clinical pharmacy practice with other health care providers in the clinical setting.					
9. Teaching and learning strategies					
Education strategies		- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy			
Learning strategies		- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy			
10. Course structure					
Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	• 2	Cognitive outputs 1- how to deal with the different diseases	Adrenal disorders	The white board PowerPoint	oral and ,written assiments theoretical examinations, semi-

		and medical disorders.		slides E-Learning	semester and semester
٢	• 2	2- Study different to know their causes, diagnosis as well as treatment options.	Thyroid disorders	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
٣	• 2	3- How to communicate and educate the patient	Alzheimer disease	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
		4- How to prepare and present seminars.			
		<u>Acquiring skills</u>			
		1- Communication skills.			
٤	• 2	2- Education skills.	Generalized anxiety disorders	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
		3- Research skills.			
		<u>Emotional and value outcomes</u>			
٥	• 2	- Thinking skills through translating, analysing, evaluating and extracting ideas	Depressive disorders	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
٦	• 2	- Instilling moral values for proper dealing with patients	Schizophrenia	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
		Transferable general and qualifying skills (other skills related to employability and personal development).			
٧	• 2	- Performing practical experiments	Insomnia	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
		- Acquiring skill in using computers			
٨	• 2	- Giving the student confidence through discussing seminars	Contraception	The white board PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
		- Acquire skill in writing reports			
٩	• 2	- Acquiring driving skills	Hormonal replacement therapy	The white board PowerPoint slides E-Learning	, oral and written assessments theoretical examinations, semi-semester and semester
		- Acquiring skill in dealing			
١٠	• 2		Menstruation related disorders	The white board PowerPoint slides	, oral and written assessments theoretical examinations, semi-semester and semester

				E-Learning	
١١	• 2		Cancer chemotherapy and treatment	The white board PowerPoint slides E-Learning	, oral and written assignments theoretical examinations, semi-semester and semester
١٢	• 2		Leukemia	The white board PowerPoint slides E-Learning	, oral and written assignments theoretical examinations, semi-semester and semester
١٣	• 2		Breast cancer	The white board PowerPoint slides E-Learning	, oral and written assignments theoretical examinations, semi-semester and semester
١٤	• 2		Prostate cancer	The white board PowerPoint slides E-Learning	, oral and written assignments theoretical examinations, semi-semester and semester
١٥	• 2		Adverse effects of chemotherapy	The white board PowerPoint slides E-Learning	, oral and written assignments theoretical examinations, semi-semester and semester

١١. Course evaluation

student, such as daily according Distribution of the grade out of ١٠٠ according to the tasks assigned to preparation and daily, oral, and monthly exams
Editorial, reports, e

- Quizzes and assignments exam 5 M
- The mid-term exam 25 marks
- The final exam 70 M

12. Learning and teaching resources

Required textbooks (methodology, if any)

Pharmacotherapy a pathophysiological approach

Main references (sources))	
Recommended supporting books and references (scientific journals, reports,...)	
references , websites	BNF, Bp and USP

Course Description

1. Course Name
Therapeutic Drug Monitoring
2. Course Code
566 CpTd
3. Semester/Year
5th Class, 2nd Semester
4. Date this description was prepared

2/9/2024

5. Available Attendance Forms

Physical attendance

Number of units (total) / Number of academic hours (total)

Three units. Two hours of theoretical per week and two hours of practical per week.

7. Name of course coordinator(s):

Name: Ass.Prof. Dr. Abdullah Hameed Maad

Email: dr.ph.abdullah.maad@gmail.com

8. Course Objectives

Objectives of the study subject	1. Learning the basic principles of pharmacokinetics and pharmacodynamics. 2. Designing a dosage regimen based on the therapeutic target range of a clinical condition and the drug pharmacokinetics and pharmacodynamics especially those related to narrow therapeutic index medications. 3. Adjusting the dosage regimen based on the variable circumstances associated with the clinical condition especially those related to narrow therapeutic index medications.
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9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept Mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Example-presentation strategy

10. Course structure

Week	Hour	Required learning outcomes	Name of the topic or unit	Learning method	Evaluation method
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1	4	Knowledge learning outcomes 1- Designing dosage regimens for medications in general, especially those with a narrow therapeutic index	Basic Principles and introduction to clinical pharmacokinetics	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
2	4	2- Evaluating the dosage regimens of medications and how to improve the dosage regimen safety and efficacy, particularly those with a narrow therapeutic index	Pharmacokinetics: Volume of distribution and loading dose	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
3	4	3- How to deal with the patients from a pharmacokinetic perspective and follow up the patients' parameters	Pharmacokinetics: Clearance	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
4	4	4- Educating the student scientifically in his major field of study	Pharmacokinetics: Maintenance dose	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
5	4	5- How to conduct and deliver seminars and lectures related to therapeutic drug monitoring.	Pharmacokinetics: Concentration profile of IV drugs	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
6	4	Acquired skills 1- Skills of how to communicate with patients about information relevant to their medications pharmacokinetics	Pharmacokinetics: Concentration profile of IV infusion drugs	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
7	4	2- The skill of educating patients about their medications dosage	Pharmacokinetics: Oral route	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams

8	4	regimens 3- The skill of extracting the required information from approved sources	Pharmacokinetics: Concentration profile of oral drugs	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
9	4	Thinking and analytical skills 1- Thinking skills through translating, analysing, evaluating and extracting ideas	Review and discussion of previous topics	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
10	4	2- Instilling moral values for proper management of patients	Pharmacokinetics: Multiple dosages	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
11	4	General acquired skills (other skills related to employability and personal development) - Acquiring listening and reading skills	TDM of digoxin	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
12	4	- Acquiring skill in using computers - Giving the student confidence through discussing seminars	TDM of lithium and theophylline	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
13	4	- Acquire skill in writing reports - Acquiring leadership skills - Acquiring communication skill	TDM of aminoglycosides	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
14	4		TDM of vancomycin	Black board PowerPoint slides E-learning Workshops	Reports, assignment, oral & written exams, mid & final-term exams
15	4		Overall review and discussion of	Black board PowerPoint slides	Reports, assignment, oral & written exams, mid

			topics	E-learning Workshops	& final-term exams
11. Course evaluation					
Distribution of the grade out of 100 according to the tasks assigned to the students such as daily preparation and daily and monthly exams, reports, editorials, etc..					
Midterm exam 20 marks					
Practical exam 20 marks					
Final exam 60 marks					
12. Learning and teaching resources					
Textbooks (if any required)	Applied Clinical Pharmacokinetics, Third Edition, 2014 by Larry A. Bauer.				
Main references (sources)	Clinical Pharmacokinetics Concepts and Applications, Latest Edition, by Malcolm Rowland and Thomas Tozer				
Recommended supporting books and references (reports, scientific journals)	Introduction to Pharmacokinetics and Pharmacodynamics: The Quantitative Basis of Drug Therapy, Thomas N. Tozer and Malcolm Rowland				
Websites, references					

Course Description

1. Course Name
Advanced Pharmaceutical Analyses
2. Course Code
٥٦٧PcAp
3. Semester/Year
5th Class, 2nd Semester
4. Date this description was prepared

2/9/2024	
5. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
45 hours Theory and Laboratory	
7. Name of course coordinator(s):	
Name : abbas abd-alridha mehihi	
Email :- abbas-mehihi@alameed.edu.iq	
8. Course objectives	
Objectives of the study subject	To study spectrometric methods used for identification and characterization of organic compounds, including UV, IR, MASS and NMR spectroscopy; it enables students to understand the applications of these techniques for qualitative and quantitative analysis of organic compounds.
9. Teaching and learning strategies	
Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	
	- Study strategy - Conclusion strategy - Spaced practice strategy

	- Strategy for switching between ideas - Examples strategy
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10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 3 • 2	Cognitive outputs 1- How to deal with scientific equipment 2- Learning using different scientific techniques 3- Analyzing the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the	• UV / visible spectroscopy; Sample handling and instrumentation; • Introduction & demonstration to visible spectrophotometry.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
2	• 3 • 2	the results of pharmaceutical analysis tests, discussing them, and using them in the drug design and formulation processes. 5- The ability to write and draft pharmaceutical laboratory reports on the	• Characteristic absorption of organic compounds; • Absorption spectra of known colored solution.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

		results of scientific examinations and tests and the ability to deduce the results and their effects from the test.			
3	• 3 • 2	Acquiring skills - Preparing modern designs for drug composition and preparation methods - Analyzing, discussing, and using the results of pharmaceutical tests in the design and evaluation processes of the prepared drug.	• Rules for calculation of lambda max and application • Absorption spectra of unknown colored solution.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
4	• 2 • 2	Emotional and value outcomes - Thinking skills through translating, analysing, evaluating and extracting ideas	• Application of UV/visible; spectroscopy; Problems and solutions. • Beer's law plot of known solution	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
5	• 3 • 2		• Infra Red spectroscopy (theory) • Beer's law plot of unknown solution.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct

		- Instilling moral values for proper dealing with patients			laboratory experiments
6	3 2	Transferable general and qualifying skills (other skills related to employability and personal development).	- H-bonding effect; Sampling - Colorimetric assay of tetracycline (FeCl₃), known sample.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
7	3 2	- Performing practical experiments - Acquiring skill in using computers - Giving the student confidence through discussing seminars	- techniques and interpretation of spectra - Colorimetric assay of tetracycline (FeCl₃), unknown sample	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
8	3 2	- Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing	- Characteristic group frequencies of organic compounds - Colorimetric assay of tetracycline (acid), known sample.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
9	3 2		- Application of IR spectroscopy - Colorimetric assay of tetracycline (acid), unknown sample.	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester

					and semester -Conduct laboratory experiments
10	• 3 • 2		• Problems and solutions. • Colorimetric assay of streptomycin (maltol, known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
11	• 3 • 2		• H1 –Nucleomagnetic Resonance (NMR) and C13-NMR spectroscopy; • Colorimetric assay of streptomycin (maltol, unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
12	• 3 • 2		• Introduction, the nature of NMR absorption, chemical shifts and factors affecting them, information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy • Colorimetric assay of streptomycin (oxidized, known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

13	• 3 • 2	• C13-NMR spectroscopy: introduction and characteristics, DEPT C13- NMR spectroscopy. • Colorimetric assay of streptomycin (oxidized, unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
14	• 3 • 2	• Mass spectroscopy: Introduction and interpreting Mass spectra; • Colorimetric assay of tetracycline (basic, known sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments
15	• 3 • 2	• interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups.. • Colorimetric assay of tetracycline (basic unknown sample).	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester -Conduct laboratory experiments

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Practical exam 20
- The midterm exam is 20 marks

- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	. Spectrometric Identification of Organic Compounds by Silverstein, Bassler and Morrill;
Main references (sources)	Applications of absorption spectroscopy of organic compounds by Dyer JR. 3. Organic Chemistry by McMurry; 5th ed; Thomson learning CA, USA 2000.
Recommended supporting books and references (scientific journals, reports)	
references , websites	

Description Course

1. Course Name
Hospital training

٢. Course Code	
568 CpHt	
3. Semester/Year	
5st Class	
4. Date this description was prepared	
2/9/2024	
٥. Available attendance forms	
Physical attendance	
Number of academic hours (total) / number of units (total)	
60 hours Theory and Hospital wards	
7. Name of course coordinator(s):	
Name: Asst. Lecturer.Ali mohammed jafer Asst. Lecturer Elaaf fadhil hassaan Asst. Lecturer Ahmed nizar	
٨. Course objectives	
Objectives of the study subject	Giving the student the clinical and scientific information that qualifies him/her to deal with diseases in the hospital wards, knowing the cases and complications related to the surgical operations, gynecological diseases and internal medicine.
9. Teaching and learning strategies	

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Practical field training strategy -
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Wk.	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
١	4	Giving the student the clinical and scientific information that qualifies him/her to deal with diseases in the hospital wards, knowing the cases and complications related to the surgical operations and the best solution to prevent and treat them.	• Hypertension	• Whiteboard, • PowerPoint slides • Case study	Assignments Oral and written theoretical exams
2	4		• Heart Failure	• Whiteboard, • PowerPoint slides • Case study	Assignments Oral and written theoretical exams
٣	4		• Ischemic Heart Disease	• Whiteboard, • PowerPoint slides • Case study	Assignments Oral and written theoretical exams
٤	4		• Acute Coronary Syndrome	• Whiteboard, • PowerPoint slides • Case study	Assignments Oral and written theoretical exams
٥	4		• Diabetes Mellitus	• Whiteboard, • PowerPoint	Assignments

				- slides - Case study	Oral and written theoretical exams
٦	4		Surgical site infection and antimicrobial prophylaxis.	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
٧	4		VTE Prophylaxis	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
٨	4		Prophylaxis from GIT Symptoms	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
٩	4		Perioperative Medications in Patients with Chronic Diseases	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
١٠	4		Perioperative fluids administration and Burn injuries.	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
١١	4		Overview of pregnancy	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
١٢	4		Abortion and Ectopic pregnancy	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams

١٣	4		Diabetes Mellitus in pregnancy	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
١٤	4		HTN in pregnancy	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams
١٥	4		Obstetric hemorrhage and labor.	- Whiteboard, - PowerPoint slides - Case study	Assignments Oral and written theoretical exams

١١. Course evaluation

weekly Distribution of the grade out of ١٠٠ according to the tasks assigned to the student, such as exams, midterm exam, and final exam.

- Weekly oral assessments 20 marks
- The midterm exam ٢٠ marks
- The final exam 60 marks

12. Learning and teaching resources

methodology, if textbooks Required any	
Main references (sources)	Pharmacotherapy handbook 12 th edition. - Ten Teachers obstetric and gynecology - - Andersen D, Billiar T, Brunicardi F, Dunn D, Hunter J, Kao L et al. Schwartz's principles of surgery. 11th ed 2019. Zeind C., Carvalho M. Applied therapeutics. 11th ed. - 2018.
Recommended supporting books and references scientific journals, reports))	

references , websites	
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DescriptionCourse

1. Course Name
Dosage form design
2. Course Code
569 PDf
3. Semester/Year
2nd semester/ fifth year
4. Date this description was prepared
2/9/2024
5. Available attendance forms
Physical attendance
Number of academic hours (total) / number of units (total)
30 hours theory and 30 hours practices
7. Name of course coordinator(s):
Name:
8. Course objectives
This course enables students to understand the principles and factors that influence design dosage forms; and the applications of these principles in the practice of pharmaceutical industry.
9. Teaching and learning strategies

Education strategies	- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Concept mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy
Learning strategies	- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Examples strategy

10. Course structure

Week	Hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	• 2	Cognitive outputs 1- Differentiate between the various methods of drug discovery 2- Define pharmacology, drug metabolism, and toxicology	• New drug development. • Drug discovery and drug design • FDA'S Definition of a New Drug	the blackboard PowerPoint slides E-Learning	Reports, assignments, oral and written theoretical examinations, semi-semester and semester
2	• 2	3- Define an orphan drug 4- Define a package insert and the information contained therein	• Carcinogenicity Studies. • Drug Product Labeling	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
3	• 2	5- Describe the organization and personnel required by cGMP	• Supplemental, Abbreviated, And others		
4	• 2	6- Describe the various types of tamper-evident packaging methods.	• current good compounding practices	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
5	• 2	Describe the information needed in preformulation	• packaging, storage and transportation of pharmaceuticals		

6	• 2	studies to characterize a drug substance	- Pharmaceutical consideration, General consideration for the dosage form quality - Melting point; phase rule; particle size; polymorphism, Pre-formulation; physical description, microscopic examination	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
7	• 2		Permeability; pH; partition coefficient; pka; stability; kinetics; shelf, rate of reaction; stability.	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
8	• 2		Formulation consideration: Excipients; definition and types; appearance; palatability; flavouring,	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
9	• 2		sweetening; coloring pharmaceuticals; preservatives; sterilization;		
10	• 2		Assessment of bioavailability, bioequivalence among drug	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
11	• 2		Assessment of bioavailability, bioequivalence among drug		
12	• 2		Pharmacokinetic principles: Half-life; clearance	the blackboard PowerPoint slides E-Learning	Oral and written theoretical exams, semi-semester and semester
13	• 2		dosage regimen considerations		
14	• 2		Biopharmaceutical considerations,	the blackboard PowerPoint	Oral and written theoretical

				slides E-Learning	exams, semi- semester and semester
15			principle of drug absorption; dissolution of the drugs		

11. Course evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams

Editorial, reports, etc

- Daily exams and classroom activities 5 marks
- Mid-term exam 25 marks
- The final exam 70

12. Learning and teaching resources

Required textbooks (methodology, if any)	<i>Pharmaceutical Dosage Forms and Drug Delivery Systems</i> by Haward A. Ansel
Main references (sources)	Aulton's Pharmaceutics The Design and Manufacture of Medicines
Recommended supporting books and references (scientific journals, (...),reports	
references , websites	BNF, BP and USP

Course description

1. Course Name :
Pharmaceutical biotechnology
٢. Course Code:
٥٧٠ PPb
٣. Semester/year:
Second semester/ fifth year
٤. The date this description was prepared:
2/9/2024
٥. Available attendance forms:
Theoretical
٦. Number of academic hours (total) / Number of units (total):
١٥ hours
٧. Name of the course leader (if more than one name is mentioned):
Name: kamel kareem atiaa E-mail :
٨. Course objectives:
Pharmaceutical Biotechnology 1 credit hour (one lecture) The basic concepts behind biotechnology and its use in providing many therapeutic solutions for many diseases are discussed throughout the course. Emphasis will be placed on the principles and mechanisms used in developing biotechnology-derived products. This will be achieved through interactive class discussions. Prior knowledge of the basics of microbiology and immunology is essential for this course .
٩. Teaching and learning strategies:

- Brainstorming strategy - Teamwork strategy - Discussion strategy - Case study strategy - Inductive teaching strategy - Conceptual mapping strategy - Practical field training strategy - Self-learning strategy - E-learning strategy	Education strategies
- Study strategy - Conclusion strategy - Spaced practice strategy - Strategy for switching between ideas - Strategy for providing examples	Learning strategies

١٠. Course structure:

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	Hous	Week
Reports, assignments, oral and written theoretical examinations, semi-semester and semester	blackboard PowerPoint slides E-Learning	Biotechnology- introduction	- Cognitive outputs - The student should be able to know and understand what pharmaceutical biotechnology is and exploit it in order to produce new materials with important medical uses and understand the broad applications of these biotechnology in various medical and pharmaceutical journals. - Acquiring skills	١	١
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Pre –formulation considerations of biotechnology product		١	٢
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Microbial consideration		١	٣
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Formulation materials and considerations		١	٤
Oral and written theoretical exams, semi-	blackboard PowerPoint slides	Formulation materials and considerations		١	٥

semester and semester	E-Learning		-How to conduct and deliver qualitative seminars and lectures -Skill in drug education for patients -The skill of extracting the required information from approved sources		
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Formulation materials and considerations		١	٦
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Biopharmaceutical considerations		١	٧
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Biopharmaceutical considerations	- Emotional and value outcomes -Thinking skills through translating, analysing, evaluating and extracting ideas	١	٨
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Biopharmaceutical considerations	-Instilling moral values for proper dealing with patients	١	٩
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Pharmacokinetics of peptides and proteins	- Transferable general and qualifying skills (other skills related to employability and personal development)	١	١٠
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Pharmacokinetics of peptides and proteins	-Performing practical experiments	١	١١
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Stem cell therapy	-Acquiring skill in using computers	١	١٢
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Stem cell therapy	-Giving the student confidence through discussing	١	١٣
Oral and written theoretical exams, semi-	blackboard PowerPoint slides	Gene therapy		١	١٤

semester and semester	E-Learning		seminars - Acquire skill in writing reports - Acquiring driving skills - Acquiring skill in dealing		
Oral and written theoretical exams, semi-semester and semester	blackboard PowerPoint slides E-Learning	Gene therapy		۱	۱۰

۱۱. Course evaluation:

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation and daily, oral, and monthly exams, editorial, reports and etc.

- Daily exams and classroom activities 5 marks
- The mid-term exam is 25 marks
- Final exam: 70 marks

۱۲. Learning and teaching resources:

Pharmaceutical biotechnology(J A Crommelin Robert D. Syinder)	Required textbooks (methodology, if any)
Pharmaceutical biotechnology Fundamentals and Applications 4th Edition by Daan J. A. Crommelin, Robert D. Sindelar, bernd Meibohm. 2013	Main references (sources)
https://link.springer.com/978-981-10-4702-2	Recommended supporting books and references (scientific journals, reports,..)
http://www.sciencedirect.com/science/book/9781907568282	Electronic references, websites