Academic Program Description Form

University Name: Mustansiriyah University

Faculty/Institute: College of Pharmacy

Scientific Department: One-department (Pharmacy)

Academic or Professional Program Name: Bachelor of Pharmacy

Final Certificate Name: Bachelor

Academic System: Courses

Description Preparation Date: 2024-2025

File Completion Date: 3/ 2025

Signature:

Head of Department Name:

Date:

Signature:

Scientific Associate Name:

Lec. Dr. Athmar Dhahir Habeeb

Date: 24/3/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Lec. Dr.Rana Alaa Badri

Date: 24/3/2025

Signature:

25/3 2025

Approval of the Dean

1. Program Vision

Leadership in the fields of pharmaceutical education, scientific research and community service.

2. Program Mission

Preparing qualified and competent pharmacists equipped with specialized knowledge, professional skills and ethical values by providing academic and professional programs that meet the needs of the labor market

3. Program Objectives

1. Improving the college's curricula and developing them continuously in line with the labor market needs.
2. Working within the standards of institutional accreditation and the standards of national and international academic accreditation.
3. Supporting scientific research and the use of advanced technologies in research fields in addition to linking research to overall development plans and the future vision for society.
4. Communication and collaboration with local and international institutions in all fields
5. Providing scientific advice to community institutions in the field of pharmaceutical sciences
6. Diversifying the sources of funding in order to achieve scientific and sustainable development.
7. Activating the partnership in pharmaceutical industry field to provide high-quality pharmaceutical products.

4. Program Accreditation

National Council for Accreditation of Colleges of Pharmacy
American Council on Pharmaceutical Education (ACPE) (Provisional)

5. Other external influences

Laboratory Practical Part - Desk research - Extracurricular activities - Volunteer campaigns - others

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	8	10	5.5	Essential
College Requirements	55	94.4	169	Essential

Department Requirements	/			/
Summer Training		Applicable		
Other	/	/	/	/

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First year/ First Semester	**503 04 1 04**	Human biology	2	1
	503 03 1 03	Principles of Pharmacy Practice	2	----
	503 02 1 02	Analytical Chemistry	3	1
	503 01 1 01	Medical Terminology	1	----
	503 04 1 06	Mathematics and Biostatistics	3	----
	503 04 1 05	Computer Sciences	----	1
	503 04 1 00	English Language	2	----
	503 04 1 12	Democracy and Human Rights	2	----
First year/ Second Semester	**503 04 1 11**	Human Anatomy	1	1
	503 03 1 08	Pharmaceutical Calculations	2	1
	503 04 1 09	Medical Physics	2	1
	503 02 1 07	Organic Chemistry I	3	1
	503 04 1 10	Histology	2	1
	503 04 1 14	Computer Sciences	1	2
Second year / First Semester	**503 02 2 02**	Organic Chemistry II	3	1
	503 04 2 04	Medical Microbiology I	3	1
	503 03 2 03	Physical Pharmacy I	3	1
	503 01 2 01	Physiology I	3	1
	503 04 2 12	Computer Sciences	1	2
	503 04 2 17	Crimes of Ba'ath party	2	----
Second year/ Second Semester	**503 02 2 07**	Organic Chemistry III	2	1
	503 04 2 16	Medical Microbiology II	3	1
	503 03 2 08	Physical Pharmacy II	3	1
	503 01 2 06	Physiology II	3	1
	503 06 2 11	Pharmacognosy I	3	1
	503 04 2 14	Computer Sciences	----	1
	504 04 2 18	Arabic Language	2	----
Third year / First Semester	**503 02 3 01**	Inorganic Pharmaceutical Chemistry	2	1
	503 06 3 05	Pharmacognosy II	2	1
	503 03 3 02	Pharmaceutical Technology I	3	1
	503 04 3 04	Biochemistry I	3	1
	503 04 3 03	Pathophysiology	3	1
Third year / Second Semester	**503 02 3 07**	Organic Pharm. Chemistry I	3	1
	503 01 3 06	Pharmacology I	3	----

	503 03 3 08	Pharm. Technology II	3	1
	503 04 3 09	Biochemistry II	3	1
	503 06 3 11	Pharmacognosy III	2	1
	503 05 3 10	Pharmacy Ethics	1	----
Fourth year / First Semester	**503 01 4 01**	Pharmacology II	3	1
	503 02 4 02	Organic Pharm. Chemistry II	3	1
	503 05 4 05	Clinical Pharmacy I	2	1
	503 03 4 03	Biopharmaceutics	2	1
	503 04 4 04	Public Health	2	----
	503 04 4 12	English Language	2	----
Fourth year/ Second Semester	**503 01 4 06**	Pharmacology III	2	----
	503 02 4 08	Organic Pharm. Chemistry III	3	1
	503 05 4 10	Clinical Pharmacy II	2	1
	503 014 07	General Toxicology	2	1
	503 03 4 09	Industrial Pharmacy I	3	1
	503 05 4 11	Communication Skills	2	----
Fifth year / First Semester	**503 02 5 02**	Organic Pharm. Chemistry IV	2	----
	503 03 5 03	Industrial Pharmacy II	3	1
	503 05 5 06	Applied Therapeutics- I	3	-----
	503 04 5 05	Clinical Chemistry	3	1
	503 01 5 01	Clinical Toxicology	----	2
	503 04 5 04	Clinical Laboratory Training	2	1
Fifth year / Second Semester	**503 05 5 13**	Pharmacoeconomic	2	----
	503 05 5 11	Applied Therapeutics- II	2	----
	503 05 5 12	Therapeutic Drug Monitoring (TDM)	2	1
	503 02 5 09	Advanced Pharmaceutical Analysis	3	1
	503 05 5 10	Hospital Training	----	2
	503 03 5 08	Dosage Form Design	2	----
	503 03 5 07	Pharmaceutical Biotechnology	1	----
	----------	Graduation Project	1	----

8. Expected learning outcomes of the program

Knowledge	
1. Understand normal body functions and how morbidity affects them	Analyze the anatomical, functional, biochemical, and clinical aspects of the human body in cases of health and morbidity
2. Analyze the chemical and physical properties of the drug	Analyze how the properties of the drug affect its efficacy and side effects.
3. Identify and understand the different types of pharmaceutical doses	Choosing the right drug formula, manufacturing methods, evaluating it for effectiveness, therapeutic effects, negative effects, stability, and calculating the correct doses are all important parts of drug formulation.
4. Learn about different treatments and treatment strategies	How to choose the right treatment for the disease condition to acheive the desired therapeutic effect

5. Understand the concept of citizenship and human rights	The pharmacist shall be familiar with his duties and rights as a good citizen in society
6. Understand the concepts and principles of medical statistics and medical physics	Learn how to evaluate the results of clinical studies and economic studies on pharmaceuticals
7. Assess the side effects and toxicity of drugs and their mechanisms of action	Pharmacological interventions identification
Skills	
1. Learn how to work in laboratory environment	. Considering laboratory security and safety regulations, the student can handle lab equipment and supplies safely.
2. Self-learning	The student will have the ability to look up and use information.
3. Providing the highest level of health care	The pharmacist can follow up on a patient's treatment and offer scientific and pharmaceutical advice to them in the community and at a medical facility.
4. Provide safe and effective treatment	The pharmacist will be able to identify therapeutic errors based on whether the treatment is appropriate for the patient's pathological state and whether it interferes with the patient's overall health.
5.How to communicate with patients in professional manner	The pharmacist can deal with patients at different intellectual, scientific, social, psychological and health levels
6. How to communicate with medical staff in professional manner	The pharmacist will be able to interact with the different medical personnel, including the physician, nurse, and others, to address any therapeutic errors and offer recommendations for therapy that are well-founded.
7. Follow up the patient to ensure that the treatment is effective in the best possible way	The pharmacist can apply the basic concepts of drug chemistry and the mechanism of his work in interpreting drug interactions and providing pharmaceutical advice to medical staff and society
8. The skill of dealing with medicines and dispensing them	The pharmacist will be able to educate the patient on the various aspects of using the medication dosage and how to store them.
9. The ability to prepare medications, pharmaceutical formulations, and preservation techniques	The pharmacist will be able to prepare therapeutic compounds in the pharmacy as needed and work in the pharmaceutical industry
Ethics	
1• communicate with patients with pharmacy ethics	Dealing with patients with pharmacy ethics The pharmacist maintains the patient's privacy and makes the security and safety of the patient and the community the first goal of the pharmacist profession
2• working in a team spirit with other colleagues within the health sector in the work environment	Interacting in a cooperative manner with coworkers in the healthcare team at work. The pharmacist and student interact with his peers in a cooperative manner.

9. Teaching and Learning Strategies

- Lecture Presentation

• Interactive discussions
•Brainstorming
• Small group tutorials
• Research and induction
• Small group discussions
• Field visits to institutions and bodies associated with the work of a pharmacist
• Volunteer work, seminars, workshops and exhibitions

10. Evaluation methods

Home works and reports
Daily and weekly quizzes
Skills evaluation
Mid-term and Final term exam
Graduation projects

11.Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof.	10	7			17	
Assistant Prof.	16	11			27	
lecturer	27	27			54	
Assistant lecturer	56	20			76	

Professional Development

Mentoring new faculty members

• Teaching Methods Course
• Teaching validity cycle

Professional development of faculty members

• Workshops, seminars and courses through continuous professional development unit:
• Pharmaceutical education mechanisms and strategies
• Basics of setting exam questions
•Interactive learning strategies
• Foundations and mechanisms of updating and developing curricula

12.Acceptance Criterion

Central admission (depending on the academic average and physical health as approved by the Ministry of Higher Education and Scientific Research)

13.The most important sources of information about the program

- The website of the College of Pharmacy, Mustansiriyah university in Arabic and English
- The University website
- Website of the Ministry of Higher Education and Scientific Research
- Mustansiriyah University College of Pharmacy page on social networking sites
- Panels installed in the corridors of the college
- Official documentation

14.Program Development Plan

Use the Clinical Skills Test (OSCE) for all levels and for as many relevant lectures as you can.
Incorporate interactive learning tactics
Increase the use of technology in the lecture room
Promote scientific research and induction
Foster interdisciplinary collaboration
Foster scientific skill development
Support faculty professional development

Program skills outline																					
Required program Learning outcomes																			**Basic or optional**	**Course Name**	**Course Code**	**Year/ Level**
Ethics		**skills**									**Knowledge**											
C2	C1	B9	B8	B7	B6	B5	B4	B3	B2	B1	A 7	A 6	A 5	A 4	A 3	A 2	A 1					
/	/				/	/			/	/							/		Basic	Human biology	503 04 1 04	Year 1/1st course
/		/							/	/				/	/				Basic	Principles of Pharmacy Practice	503 03 1 03	
/		/								/						/			Basic	Analytical Chemistry	503 02 1 02	
/					/	/			/		/								Basic	Medical Terminology	503 01 1 01	
/					/				/			/							Basic	Mathematics and Biostatistics	503 04 1 06	
/					/				/	/									Basic	Computer Sciences	503 04 1 05	
/					/				/										Basic	English Language	503 04 1 00	
/									/				/						Basic	Democracy and Human Rights	503 04 1 12	
/					/				/	/							/		Basic	Human Anatomy	503 04 1 11	Year1/ 2nd course
/		/							/	/				/	/				Basic	Pharmaceutical Calculations	503 03 1 08	
/					/				/	/		/							Basic	Medical Physics	503 04 1 09	
/		/							/							/			Basic	Organic Chemistry I	503 02 1 07	
/					/				/	/							/		Basic	Histology	503 04 1 10	
/					/				/	/									Basic	Computer Sciences	503 04 1 14	
/		/								/						/			Basic	Organic Chemistry II	503 02 2 02	Year 2/1st course
/					/			/	/	/									Basic	Medical MicrobiologyI	503 04 2 04	
/		/							/	/					/	/			Basic	Physical Pharmacy I	503 03 2 03	
/	/		/						/		/						/		Basic	Physiology I	503 01 2 01	

/					/				/	/								Basic	Computer Sciences	503 04 2 12	
													/					Basic	Crimes of Ba'ath party	503 04 2 17	
/		/							/	/						/		Basic	Organic Chemistry III	503 02 2 07	Year 2/ 2nd course
/					/			/	/	/								Basic	Medical Microbiology II	503 04 2 16	
/		/							/	/					/	/		Basic	Physical Pharmacy II	503 03 2 08	
/	/		/						/		/						/	Basic	Physiology II	503 01 2 06	
	/						/	/	/	/	/					/		Basic	Pharmacognosy I	503 06 2 11	
/					/				/	/								Basic	Computer Sciences	503 04 214	
/									/				/					Basic	Arabic Language	503 04 2 18	
/		/							/	/	/					/		Basic	Inorganic Pharmaceutical Chemistry	503 02 3 01	Year 3/1st course
	/						/	/	/	/	/						/	Basic	Pharmacognosy II	503 06 3 05	
/	/	/	/					/	/	/					/			Basic	Pharmaceutical Technology I	503 03 3 02	
/					/			/	/	/							/	Basic	Biochemistry I	503 04 3 04	
/					/				/	/							/	Basic	Pathophysiology	503 04 3 03	
/		/							/	/	/					/		Basic	Organic Pharm. Chemistry I	503 02 3 07	Year 3/2nd course
/	/		/	/	/	/								/	/			Basic	Pharmacology I	503 01 3 06	
/	/	/	/					/	/	/					/			Basic	Pharm. Technology II	503 03 3 08	
/					/			/	/	/							/	Basic	Biochemistry II	503 04 3 09	

	/						/	/	/	/	/					/		Basic	Pharmacognosy III	503 06 3 11	
/	/				/	/							/					Basic	Pharmacy Ethics	503 05 3 10	
/	/			/	/	/	/			/		/			/	/		Basic	Pharmacology II	503 01 4 01	Year 4/ 1st course
/		/							/	/	/					/		Basic	Organic Pharm. Chemistry II	503 02 4 02	
/	/		/	/		/	/	/			/			/			/	Basic	Clinical Pharmacy I	503 05 4 05	
/				/			/		/	/	/				/		/	Basic	Biopharmaceutics	503 03 4 03	
/	/							/				/		/			/	Basic	Public Health	503 04 4 04	
/					/				/									Basic	English Language	503 04 4 12	
/	/		/	/	/	/					/		/		/	/		Basic	Pharmacology III	503 01 4 06	Year 4/2nd course
/		/							/	/	/					/		Basic	Organic Pharm. Chemistry III	503 02 4 08	
/	/			/	/	/	/	/	/		/			/			/	Basic	Clinical Pharmacy II	503 05 4 10	
/	/			/	/	/	/		/	/				/		/		Basic	General Toxicology	503 014 07	
/		/							/	/		/			/	/		Basic	Industrial Pharmacy I	503 03 4 09	
/	/				/	/							/					Basic	Communication Skills	503 05 4 11	
									/		/					/		Basic	Organic Pharm. Chemistry IV	503 02 5 02	Year 5/1st course
/		/								/	/	/			/	/		Basic	Industrial Pharmacy II	503 03 5 03	
/	/		/	/			/	/			/			/			/	Basic	Applied Therapeutics-I	503 05 5 06	
/	/				/	/		/	/	/							/	Basic	Clinical Chemistry	503 04 5 05	
																		Basic	Clinical Toxicology	503 01 5 01	

/	/				/	/		/	/	/							/	Basic	Clinical Laboratory Training	503 04 5 04	
/								/	/			/						Basic	Pharmacoeconomic	503 05 5 13	Year 5/2nd course
/	/		/	/			/	/			/			/			/	Basic	AppliedTherapeutics -II	503 05 5 11	
/	/			/	/		/	/			/			/	/			Basic	Therapeutic Drug Monitoring (TDM)	503 05 5 12	
/									/	/					/	/		Basic	Advanced Pharmaceutical Analysis	503 02 5 09	
/	/		/	/	/	/	/	/			/			/			/	Basic	Hospital Training	503 05 5 10	
/		/		/					/	/					/	/	/	Basic	Dosage Form Design	503 03 5 08	
/			/	/	/						/				/	/		Basic	Pharmaceutical Biotechnology	503 03 5 07	
									/								/	Basic	Graduation Project	----------	

Course Description Form

1. Course Name:
Principles of pharmacy practice
2. Course Code:
50303103
3. Semester / Year:
First semester/1ST year
4. Description Preparation Date:
2/2025
5. Available Attendance Forms:
Official attendance hours
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours theoretical only
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Dr. Athmar Dhahir Habeeb Email: athmar1978@uomustansiriyah.edu.iq

8. Course Objectives	
Course Objectives	Enable the students to interpretation of prescription or medication order. Enable the students to use the metric and apothecaries system in pharmaceutical calculations. Enable the students to calculate the dosage.. Enable the students to use some of fundamental of measurements and calculations Enable the students to use calculations related density, specific gravity and spec volume.

9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Principles of pharmacy calculations	Principles of pharm calculations	Lecture/ theory	Oral discussi

2	2	Prescription and medication orders	Translate prescription a medication orders	Lecture/ theory	Oral discussio
3	2	Prescription and medication orders	Translate prescription a medication orders	Lecture/ theory	Oral discussio
4	2	International system of units	Learning IS units and their calculation	Lecture/ theory	Oral discussio
					Mid-term exa
5	2	International system of units	Learning IS units and their calculation	Lecture/ theory	Oral discussio
6	2	Common system measurements intersystem conversion	Common system measurements	Lecture/ theory	Oral discussio
7	2	Common system measurements intersystem conversion	Interconversion betw IS and metric systems	Lecture/ theory	Oral discussio
8	2	Dose calculati general considerations	How to calculate pro doses	Lecture/ theory	Oral discussio
9	2	Dose calculati general considerations	How to calculate pro doses	Lecture/ theory	Oral discussio
10	2	Dose calculati patient parameters	How to calculate pro doses based elevenpatient weight	Lecture/ theory	Oral discussio
11	2	Dose calculati patient parameters	How to calculate pro doses based on patient a	Lecture/ theory	Oral discussio
12	2	Dose calculati patient parameters	How to calculate pro doses based on pati BSA	Lecture/ theory	Oral discussio
13	2	Density and spec gravity and spec volume	How to calculate dens and specific gravity	Lecture/ theory	Oral discussio
14	2	Density and spec gravity and spec volume	How to calculate dens and specific gravity	Lecture/ theory	Oral discussio
15	2	Reducing enlarging formula	Reducing and enlarg formula	Lecture/ theory	Oral discussio
					Final exam
11. Course Evaluation					

Mid term Exam 25 marks Quizzes and activities 5 marks Final Exam 70 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Pharmaceutical Calculation ,Howard C Ansel,13 th Edition2010 Wolters Kluwer Lippincott Williams &Wilkins
Main references (sources)	Pharmaceutical Calculation ,Howard C Ansel,13 th Edition2010 Wolters Kluwer Lippincott Williams &Wilkins
Recommended books and references (scientific journals, reports…)	none
Electronic References, Websites	Library references

Course Description Form

1. Course Name:
Human Biology
2. Course Code:
50304104
3. Semester / Year:
First semester/1ST year
4. Description Preparation Date:
2/2025
5. Available Attendance Forms:
In-person/ lecture hall for theory + laboratory of Human Biology for the practical part
6. Number of Credit Hours (Total) / Number of Units (Total)
4 hrs weekly/ 4 units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Ahmed Ali Mohammed Email: alazzauy@yahoo.com Asst. Prof. Dr. Mustafa Heilo Name: Asst. Lect. Ruqaya hasan mousa Email: ruqaya.hasan@uomustansiriyah.edu.iq Name: Asst. Lect. Huda Muhammed Muzher Email: hudamuhammed9@uomustansiriyah.edu.iq Name: Asst. Lect. Sarah Mussa mahmood Email: sarahaljobury@uomustansiriyah.edu.iq Name: Asst. Lect.Marwa Furat Abbas Email: Marwafurat@uomustansiriyah.edu.iq Name: Asst.Lect.Ali Jamal Turkey Email: alijmal1996@uomustansiriyah.edu.iq

8. Course Objectives	
Course Objectives	-Studying and understanding the biology of the human body. -Giving all the information regarding the types of cells and tissues found in the human body, basic information about the human anatomy, and how the human body works
9. Teaching and Learning Strategies	
Strategy	-A detailed explanation of the scientific facts and information, using a mutual discussion about the scientific terms and vocabulary related to the subject, using computer programs, especially the PowerPoint, to display slides and various images related to the lesson's topic. -Displaying slides related to the subjects on the screen and studying them under a microscope -Using the scientific references

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Introduction to Human Biology: General information, definitions, branches of Biology, levels of	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral

			organization in the human body.		exams, quizzes
2	2		Nutrition-Part I Definitions, important food molecules	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
3	2		Nutrition-Part II Digestion.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
4	2		Cell and cell biology: Cell structure, cell types, cell jobs.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
5	2		Cell and cell biology: cell division and production of reproductive cells, fertilization & development of embryo	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
6	2		Tissues-Part I Epithelial tissues, Connective tissues.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
7	2		Tissues-Part II Muscular tissues, Nervous tissues.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
8	2		Systems/ Glandular System: Types of glands and their structure.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
9	2		Systems/ Hormones and hormonal system, adulthood and reproduction	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
10	2		Systems/ Immune system: The parts and Job of the immune system.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
11	2		Systems/ Digestive system: The general structure of the system including its organs starting from the mouth to the anus, with their function.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
12	2		Systems/ Circulatory system: The heart, circulatory system components, circulation.	Slide show, smart bo and scientific referen	Mid-term written exams, daily written exams, oral exams, quizzes
13	2		Review for the Final exam	Slide show, smart bo and scientific referen	Mid-term written exams, daily written exams, oral exams, quizzes
Week	Hours	Require Learnin Outcom	Unit or subject name	Learning method	Evaluation method
1	2		Introduction to Human Biology: General information, definitions,	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral

			branches of Biology, levels of organization in the human body.		exams, quizzes
2	2		Nutrition-Part I Definitions, important food molecules	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
3	2		Nutrition-Part II Digestion.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
4	2		Cell and cell biology: Cell structure, cell types, cell job	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
5	2		Cell and cell biology: cell division and production of reproductive cells, fertilization & development of embryo	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
6	2		Tissues-Part I Epithelial tissues, Connective tissues.	Slide show, smart bo and scientific referen	Mid-term written exams, daily written exams, oral exams, quizzes
7	2		Tissues-Part II Muscular tissues, Nervous tissue	Slide show, smart bo and scientific referen	Mid-term written exams, daily written exams, oral exams, quizzes
8	2		Systems/ Glandular System: Types of glands and their structure.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
9	2		Systems/ Hormones and hormonal system, adulthood and reproduction	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
10	2		Systems/ Immune system: The parts and Job of the immune system.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
11	2		Systems/ Digestive system: The general structure of the system including its organs starting from the mouth to the anus, with their function.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
12	2		Systems/ Circulatory system: The heart, circulatory system components, circulation.	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
13	2		Review for the Final exam	Slide show, smart board and scientific references	Mid-term written exams, daily written exams, oral exams, quizzes
11. Course Evaluation					

1. Conduct oral and written evaluation 2. Practical reports (practical part) 3. Surprising, inferential questions during the discussion between the two sides 4. Conducting daily exams for students (practical part) Written Mid-term exam (Theoretical part)/ 20 marks Daily oral discussion + final exams + quizzes + reports (Practical Part)/ 20 marks 60 marks for Final Exam Total 100 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	The curricular book: A textbook of Human biology by j. k. INGLIS
Main references (sources)	Different supporting references from the internet depending on the studying subject within the curriculum
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Analytical Chemistry
2. Course Code:
503 021 02
3. Semester / Year:
First semester/1ST year
4. Description Preparation Date:
March 2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
45h Theoretical + 30h Practical / 4Units
7. Course administrator's name (mention all, if more than one name)
Dr.Lecturer: Wathiq Alwan Ajil Al-Hachami wathiq_al_hachami@uomustansiriyah.edu.iq Dr.Lecturer: Halah Hamid Hammadi halahammadi@gmail.com Lecturer: Abeer Qays abdul wahab abeerqaya2000@uomustansiriyah.edu.iq Lecture: Nehad Kanaan Abed kanaan_nehad@uomutansiriyah.edu.iq Assist. Lecturer Wssan Ajam Hanooan wasan.ajam83@uomustansiriyah.edu.iq Assist. Lecturer Sundus Abdulkareem sondosalaboodi@uomustansiriyah.edu.iq

8. Course Objectives	
Course Objectives	1.Statement of the basic principles in analytical chemistry. 2.Conducting practical experiments of theoretical concepts. 3.Study the main types of titration . 4.Enabling the students to develop knowledge and laboratory skills through laboratory work and by using many chemical technologies and devices.
9. Teaching and Learning Strategies	
Strategy	1.Using the strategy of cooperation and assistance during the learning process. 2.Conducting Field tours to the relevant ministries and educational institutions. 3.Forming discussion groups during the lecture.

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz	Lecture	Review of elementary concept important to analytical chemistry: strong and weak electrolytes , importance weight and concentration		3	1.
Quiz	Lecture	Review of elementary concept important to analytical chemistry: strong and weak electrolytes , importance weight and		3	2.

		concentration			
Quiz	Lecture	The evaluation to gravimetric data, definition of terms.		3	3.
Quiz	Lecture	The evaluation to gravimetric data, definition of terms.		3	4.
Quiz	Lecture	An introduction to gravimetric analysis statistical analysis of data, rejection of data, precipitation methods		3	5.
Quiz	Lecture	An introduction to gravimetric analysis statistical analysis of data, rejection of data, precipitation methods		3	6.
Mid-term exam					
Quiz	Lecture	The scope of application of gravimetric analysis , inorganic and organic precipitating agents		3	7.
Quiz	Lecture	The scope of application of gravimetric analysis , inorganic and organic precipitating agents		3	8.
Quiz	Lecture	An introduction to volumetric methods of analysis, volumetric calculations acid-base equilibria and PH calculations		3	9.
Quiz	Lecture	An introduction to volumetric methods of analysis, volumetric calculations acid-base equilibria and PH calculations		3	10.
Quiz	Lecture	Theory of neutralization titrations of complex systems		3	11.
Quiz	Lecture	Theory of neutralization titrations of complex systems		3	12.
Quiz	Lecture	Calculation of PH in complex system		3	13.

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1- Fundamentals of Analytical chemistry by skoog and West 8th.ed.(2008). 2-Chemical Analysis in the Laboratory A Basic Guide, by I. Mueller-Harvey and R. M. Baker, ISBN 0-85404-646-1.
Main references (sources)	1- Modern Pharmaceutical Drug Analysis, by L. Zechmeister And L. Von Cholnoky, ISBN (13) : 978-81-224-2718-9
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Mathematics & Biostatistics	
2. Course Code:	
50304106	
3. Semester / Year:	
First semester/first year	
4. Description Preparation Date:	
2/2025	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 / 3	
7. Course administrator's name (mention all, if more than one name)	
Name: Lecturer Aseel Hisham Khamas Email: dr.asee@uomustansiriyah.edu.iq	
8. Course Objectives	
Course Objectives	1- Giving students the ability to deal with the concept of mathematics and biostatistics and their applications in pharmaceutical sciences. 2- Enabling students to possess the skills of using scientific research tools the academic field 3- Developing students' abilities to share ideas 4-Empowering students to possess dialogue and discussion skills 5-Enabling students to possess self-learning skills
9. Teaching and Learning Strategies	
Strategy	1- Explaining the scientific material to students in detail. 2- Students' participation in solving mathematical problems 3- Discussion and dialogue about vocabulary related to the topic 4- Show educational videos

10. Course Structure

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

		field			
4	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Slope and equation for lines	Power Points.. Whit board	Quizzes ,homework and Oral examination
5	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Practice exercises	Power Points.. Whit board	Quizzes ,homework and Oral examination
6	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Biostatics: General concepts of statistics	Power Points Whit board	Quizzes ,homework and Oral examination
7	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Limits, theorem of limits	Power Points Whit board	Quizzes ,homework and Oral examination
8	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Statistical methods and theory	Power Points Whit board	Quizzes ,homework and Oral examination
9	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Continuity , continuity conditions	Power Points Whit board	Quizzes ,homework and Oral examinatio
10	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Practice exercises	Power Points Whit board	Quizzes ,homework and Oral examination
11	3	Students gained information in the fieldof Mathematics Biostatistics and the application in medical field	Probability concepts	Power Points Whit board	Quizzes ,homework and Oral examination
12	3	Students gained information in the field	The concepts of central	Power Points Whit board	Quizzes ,homework and

		of Mathematics Biostatistics and the application in medical field	tendency		Oral examination
13	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Practice exercises	Power Points Whit board	Quizzes ,homework and Oral examination
14	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Deviations and variation, application of static in medical field	Power Points Whit board	Quizzes ,homework and Oral examination
15	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Review question and exercises	Power Points Whit board	Quizzes ,homework and Oral examination

11. Course Evaluation

Mid term Exam	25 marks
Quizzes and activities	5 marks
Final Exam	70 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1-Calculus (Thomas) (Eleventh edition) 2-Introductory Biostatistics for the health sciences (Robert C. Duncan,…) (Second edition) 3- Any modern source in mathematics and biostatistics.
Main references (sources)	1-Calculus (Thomas) (Eleventh edition) 2-Introductory Biostatistics for the health sciences (Robert C. Duncan,…) (Second edition) 3- Any modern source in mathematics and biostatistics.
Recommended books and references (scientific journals, reports...)	1- Researchgate.com Googlescholar.com
Electronic References, Websites	Youtube.com

Course Description Form

1. Course Name
: Computer Science I
2. Course Code:
50304105
3. Semester / Year:
First semester/1ST year
4. **Description Preparation Date**:
2-2025
5. Available Attendance Forms:
Official attendance hours
6. Number of Credit Hours (Total) / Number of Units (Total)
2 Hours per week / 1 Unit
7. Course administrator's name (mention all, if more than one name)
Name: Assist. Lec. Ara Murad Thomas, Email: ara.murad@uomustansiriyah.edu.iq Assist. Lec. Mohammed Ahnaf Ali Email: mohammed.ahnaf@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	• Identify and learn the basics of Information and Communication Technology • Identify computer components and parts. • Identify computer software, operating system, distinguish between various applications • Apply the required knowledge to handle file types in the digital world
9. Teaching and Learning Strategies	
Strategy	Lecturing, practical implementation and reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	ICT, internet services, Mobile Technology, Office productivity tools	Information and Communication Technology	Lecturing	None
2	2	Main Computer Types and electronic devices affecting ICT	Computer types	Slides and smart board	oral examinations
3	2	Computer Hardware, IO devices, Storage and Processing	Computer Hardware	Smart board and real hardware parts	Oral exam
4	2	Input Output Device types, display adapters and printers	Display and printers	Lab computers and smart board	written examinations
5	2	Computer ports, Anti-theft	Ports	Lab computers and smart board	Oral exam

		Devices, Surge Protection and Battery Backup.			
6	2	Computer Software, Software Categories, Application Software, Utility Software, Device Drivers, Popular Applications.	Computer Software	Smart board and lecturing	Oral examinations
7	2	Installing Software and Upgrades, Security Software.	Computer Software	Lab computers and smartboard	None
8	2	Operating Systems and File Management, OS activities, User Interface, Boot process, Today's Operating Systems.	Operating Systems	Smartboard and lab computers	oral examinations
9	2	File Basics, File Names and Extensions, Directories and Folders, File Formats, File Management	File Systems	Smartboard and lab computers	written examination
10	2	Operating system configuration, customization and tweaking	Operating system configuration	Smartboard and lab computers	Group assignment
11	2	Working with images, importing, editing, scanning, creating slide shows, enhancing	Imaging	Smartboard and lab computers	oral examinations
12	2	Documents management, Finding, replacing and editing texts. Printing	Documents	Smartboard and lab computers	Group assignment
13	2	Searching files, Backup Security.	File management	Lab Computers and lecturing	written examination
11. Course Evaluation					

The total grading is 100%, divided as follows: 1. Attendance (10%) 2. Assignment (15%) 3. Mid-Term Exam (15%) 4. Final exam (60%)	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	• ICDL Module 1: Concepts of Information Technology • Teach Yourself VISUALLY Windows 10 (Teach Yourself VISUALLY (Tech)) by Paul McFedries. ISBN-13: 978-1119057024. Publication Year 2015
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Pharmaceutical calculation
2. Course Code:
50303108
3. Semester / Year:
Second semester/first year
4. Description Preparation Date:
2/2025
5. Available Attendance Forms:
Official attendance hours
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours theoretical only
7. Course administrator's name (mention all, if more than one name)
Name: Lec. Ibtihal adbulkadhim dakhil Email: ebtihalkazem@gmail.com
8. Course Objectives

Course Objectives	Enable students to become familiar with the types of numbers, the abbreviations commonly used in prescriptions and their meanings. Enable students to understand the components of the typical recipe, the system of different units and the relationship between them Enabling students to acquire and understand tools for measuring weights and volumes .Enabling students to learn how to calculate drug doses on different bases Enable students to obtain and understand how to reduce and enlarge prescriptions.
9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Differentiate between terms isosmotic, isoto hypertonic and hypotoni	Isotonic solution	Lecture/ theo	Oral discussion
2	2	Apply physical chemi principles in the calculat of isotonic solutions.	Isotonic solution	Lecture/ theo	Oral discussion
3	2	Perform the calculation required to prepare isoto component prescriptio	Isotonic solution	Lecture/ theo	Oral discussion
4	2	Electrolyte solutic	Calculate	Lecture/ theo	Oral discussion

		Milliequivalent, millimo and milliosmoles	milliequivalent weight from atomic or form weight.		
Mid-term exam					
5	2	Electrolyte solutions Milliequivalents, millimoles, and milliosmoles	Convert betwee milligrams and milliequivalent	Lecture/ theo	Oral discussion
6	2	Electrolyte solutions: Milliequivalent, millimo and milliosmoles	Calculate proble involving milliequivalent	Lecture/ theo	Oral discussion
7	2	Electrolyte solutions: Milliequivalent, millimo and milliosmoles	Calculate proble involving millimoles and milliosmoles.	Lecture/ theo	Oral discussion
8	2	Altering product strengt use of stock solutions, a problem solving by allegation	Perform calculati for altering produ strength by dilut	Lecture/ theo	Oral discussion
9	2	Altering product strengt use of stock solutions, a problem solving by allegation	Perform calculati for altering produ strength by concentration	Lecture/ theo	Oral discussion
10	2	Altering product strengt use of stock solutions, a problem solving by allegation	Perform calculati for preparation a use of stock solutions.	Lecture/ theo	Oral discussion
11	2	Altering product streng use of stock solutions, problem solving allegation	Apply allegat medial allegation alter in problem- solvi	Lecture/ theo	Oral discussion
12	2	Intravenous infusio Parenteral admixtures, rate of flow calculations	Perform calculati for adults paediatric intravenous infusions.	Lecture/ theo	Oral discussion
13	2	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	Perform calculati for intraven additives.	Lecture/ theo	Oral discussion
14	2	Intravenous infusio Parenteral admixtures, rate of flow calculations	Perform rate of fl calculations intravenous fluids	Lecture/ theo	Oral discussion
15	2	Calculations on parent infusion	Intravenous admixture	Lecture/ theo	Oral discussion
Final exam					
11. Course Evaluation					
Mid term Exam 17 marks					

Quizzes and activities 3 marks Pharm. calculations lab. 20 Final Exam 60 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Pharmaceutical Calculation ,Howard C Ansel,13 th Edition2010 Wolters Kluwer Lippincott Williams &Wilkins
Main references (sources)	Pharmaceutical Calculation ,Howard C Ansel,13 th Edition2010 Wolters Kluwer Lippincott Williams &Wilkins
Recommended books and references (scientific journals, reports…)	none
Electronic References, Websites	Library references

Course Description Form

1. **Course Name:**
Human Anatomy
2. Course Code:
503 04 1 11
3. **Semester / Year**:
Second semester/ 1ST year
4. Description Preparation Date:
5/2/2025
5. **Available Attendance Forms:**
Official attendance hours
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours per week / 2 Units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Dalya Basil Hanna Email: pharm.dr.dalya@uomustansiriyah.edu.iq Name: Asst. Lect. Zeena Saleem Zamel Name: Asst. Lect. Safa Abdul naser fadhil Email: safa94@uomustansiriyah.edu.iq Name: Asst. Lect. Ruqaya hasan mousa Email: ruqaya.hasan@uomustansiriyah.edu.iq Name: Shahad Falah Abass Hasan Email: shahad.falah@uomustansiriyah.edu.iq Name: Marwa Ahmed Email: marwa.alfahad@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	Students completing this course will understand: Students will understand the basic of Pathology, categorize diseases according to body system, and correlate between clinical presentation with the pathophysiologic changes and the expected outcomes

9. Teaching and Learning Strategies	
Strategy	1. Lectures in class 2. Class discussions 3. Library workshop on using library resources for research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	General introduction to human anatomy	Introduction	Theory and Practical lectures	Daily oral
2	3	Musculoskeletal system	Musculoskeletal system	Theory and Practical lectures	Daily oral & Quizzes
3	3	Cardiovascular system: Anatomical position of the heart, arterial circulation, venous	Cardiovascular system	Theory and Practical lectures	Daily oral & Quizzes

		circulation			
4	3	Nervous system: Cent & Peripheral nervous system by location	Nervous system	Theory and Practical lectures	Daily oral & Quizzes
5	3	Respiratory system: Conducting portion (Nose, Nasopharynx, Trachea Bronchus and Bronchioles) Respiratory portion (Lung)	Respiratory system	Theory and Practical lectures	Daily oral & Quizzes
Mid-Term exam					
6	3	Digestive system: Location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus and Stomach) Small intestine, Large intestine, Rectum and Anus. Digestive system: Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver and Gall bladder)	Digestive system	Theory and Practical lectures	Daily oral & Quizzes
7	3	Urinary system: Location of the (kidne and nephrons) Locatio of the (Ureter, Bladde and Urethra).	Urinary system	Theory and Practical lectures	Daily oral & Quizzes
8	3	Male reproductive system: Location of the testes Excretory genital ducts Excretory genital glands (Seminal vesicles, Prostate and Cowpers glands)	Male reproductive system	Theory and Practical lectures	Daily oral & Quizzes
9	3	. Female reproductive system: Location of ovary, Oviduct, Uterus and Vagina	Female reproductive system	Theory and Practical lectures	Daily oral & Quizzes

Final exam	
11. Course Evaluation	
The total grading is 100%, divided as follows: 1. Mid-Term exam (15%) 2. Preparation of reports, and daily oral (5%) 3. Practical exam (20%) 4. Final exam (60%)	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Principle of human anatomy Color atlas of human anatomy
Main references (sources)	Textbook of Anatomy
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:

Organic chemistry I

2. Course Code:

50302107

3. Semester / Year:

Second semester/ 1ST year

4. Description Preparation Date:

March 2025

5. Available Attendance Forms:

Attendance

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

45h Theoretical + 30h Practical /4Units

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

Dr. Hiba Ali Hasan	hibaalichemist@uomustansiriyah.edu.iq
Dr. Halah Hamid Hammadi	dr.halahhammadi@uomustansiriyah.edu.iq
Dr. Wathiq Al-Hachami,	wathiq_al_hachami@uomustansiriyah.edu.iq
Dr. Zeina Hussien	ziena81@uomustansiriyah.edu.iq
Lect. Abeer Qays abdul wahab	abeerqaya2000@uomustansiriyah.edu.iq
Assist. Lect. Wasan Ajam Hanoon	wasan.ajam83@uomustansiriyah.edu.iq
Assist. Lect. Sondus Abduljabar	sondosalaboodi@uomustansiriyah.edu.iq

8. Course Objectives

Course Objectives	To teach students the principles of chemistry including the fundamental principles and introduction in organic chemistry, classes of hydrocarbon compounds (alkanes, alkenes, alkynes, cycloalkanes, dienes, alkyl halides, alcohols and ethers; properties, preparations and reactions of these compounds it enable students to understand principles of organic chemistry. The practice of this course it aids the students to learn techniques that need to separate, identification and purify the compounds like melting point ,boiling point, distillation ,extraction , recrystallization ,sublimation ,solution and filtration.

9. Teaching and Learning Strategies

Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz / Work shope	Lectures	Introduction		3	1
Quiz	Lectures	Methane		3	2
Quiz	Lectures	Alkanes		3	3
Quiz	Lectures	Cyclo alkanes		3	4
Quiz	Lectures	Alkenes I		3	5

Quiz	Lectures	Alkenes II		3	6
Quiz	Lectures	Alkynes		3	7
Quiz	Lectures	Dienes		3	8
quiz	Lectures	Stereochemistry I		3	9
Quiz	Lectures	Stereochemistry II		3	10
Quiz	Lectures	Alcohols		3	11
Quiz	Lectures	Alcohols I		3	12
Quiz	Lectures	Ethers		3	13
Quiz	Lectures	Alkyl halides I		3	14

11. Course Evaluation

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

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:
Histology
2. Course Code:
50304110
3. Semester / Year:
Second semester/ 1ST year
4. Description Preparation Date:
9-2-2025
5. Available Attendance Forms:
Official attendance hours
6. Number of Credit Hours (Total) / Number of Units (Total):
Four hours in weak/ 12 weeks
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr.Mayssaa Essam Abdalah. Pbiyssaaessam@uomustansiriyah.edu.iq Lecturer. Dr. Afrah Mohammed Hassan Lecturer. Shaimaa imad Shukur .Shaimaaimad.shukur@uomustansiriyah.edu.iq Ass. Lecturer. Huda Muhammed Muzher.hudamuhammed9@uomustansiriyah.edu.iq Ass. Lecturer. Sarah Mussa Mahmood. sarahaljobury@uomustansiriyah.edu.iq Ass. Lecturer.Marwa furat Abbas. Marwafurat@uomustansiriyah.edu.iq Ass. Lecturer.Ali Jamal Turkey. alijmal1996@uomustansiriyah.edu.iq

8. Course Objectives	
Course Objectives	• Students completing this course will be able to diagnose the normal tissues. • Knowledge of the basic principles of Human histology.
9. Teaching and Learning Strategies	
Strategy	1-Lectures include full explanation of the scientific facts and information using computer programs such as the PowerPoint, to show slides related to the lesson's topic. 2- Prepare research projects and reports 3 – Class discussion and engaging in scientific debate 4-Using the scientific references

10. Course Structure

Week	Hours (Theory)	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Tissues	Tissues	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
2	2	Integumentary System	Integumentary System	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
3	2	Circulatory System	Circulatory System	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes

4	2	Lymphatic System	Lymphatic System	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
5	2	Respiratory Syste	Respiratory System	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
6	2	Digestive System(Oral cavity)	Digestive System (Oral cavity)	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
7	2	Digestive System (digestive tract)	Digestive System (digestive tract)	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
8	2	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder (	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
9	2	Urinary System	Urinary System	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
10	2	Reproductive System(female reproductive system)	Reproductive System(female reproductive system)	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
11	2	Reproductive System(male reproductive system)	Reproductive System(male reproductive system)	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes
12	2	Review for the Final exam	Review for the Final exam	The use of scientific references and use the board	Mid-term written exams, daily written exams, oral exams, quizzes

Week	Hours (Practical)	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Tissues	Tissues	The use of scientific references and use the power point written exams,daily written, oral exams, quizzes	
2	2	Integumentary System	Integumentary System	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
3	2	Circulatory System	Circulatory System	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
4	2	Lymphatic System	Lymphatic System	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
5	2	Respiratory System	Respiratory System	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
6	2	Digestive System(Oral cavity)	Digestive System (Oral cavity)	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
7	2	Digestive System (digestive tract)	Digestive System (digestive tract)	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
8	2	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder (	Digestive System digestive glands ,Liver ,Pancreas ,Gall bladder (	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
9	2	Urinary System	Urinary System	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
10	2	Reproductive System(female reproductive system)	Reproductive System(female reproductive syste)	The use of scientific references and use the power point	written exams,daily written, oral exams, quizzes
11	2	Reproductive System(male reproductive syste	ReproductiveSystem(male reproductive system)	The use of scientific references and use the power point	written exams, written, quizzes
12	2	Review for the Final exa	Review for the Final exam	The use of scientific references and use the power point	written exams, written, quizzes

11. Course Evaluation

1.Quizzes (10 units)
2.Home Works (10 units)

3.Mid-Term Exam (20 units) 4.Final exam (60 units)	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	-Atlas of-Histology with function and clinical correlations (Dongmei Cui),2011 -Atlas of-Histology with function correlation (VictorP.Eroschenko) -Text Book of Histology
Recommended books and references (scientific journals, reports)	
Electronic References, Websites	Ed's Basic Histology Gallery. https://doi.org/10.1002/ase.2239

Course Description Form

1. Course Name:
Medical Physics
2. Course Code:
50304109
3. Semester / Year:
Second semester/ 1ST year
4. Description Preparation Date:
5/2/2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total) 2
2/ week
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Abbas Abd Latif Email: alabbas16@uomustansiriyah.edu.iq Dr.Safaa Abdulsattar Oudah Email:salqaysi@uomustansiriyah.edu.iq Lec.Aseel Hisham Email: dr.asee@uomustansiriyah.edu.iq Assist Lact. Laila ali

8. Course Objectives	
Course Objectives	1. Develop experimental skills. 2. Apply theoretical concepts practically. 3. Enhance critical thinking. 4. Understand measurement uncertainty. 5. Practice data analysis. 6. Promote collaboration. 7. Develop scientific communication. 8. Explore specific physics topics. labs bridge theory and practice
9. Teaching and Learning Strategies	
Strategy	• Start and end the class on time • Provide a well-organized overview of the lab's concepts and procedures. • Encourage collaborative work within student groups. • Use visual aids (diagrams, charts, models) to enhance understanding. • Relate physics concepts to real-world applications. • Provide constructive feedback on student work.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	18	The simple pendulum and determine the acceleration.	The simple pendulum	Board and tools	Monthly written, examination

2	18	Determine the density of liquid by test tube	The density of liquid	Board and tools	Monthly written, examination
3	18	Determine the viscosity by using a small sphere.	Viscosity of the liquid	Board and tools	Monthly written, examination
4	18	Calculate the surface tension by capillary tube method	the surface tension	Board and tools	Monthly written, examination
5	18	Compare between the density of two liquids	the density of liquids	Board and tools	Monthly written, examination
6	18	Study the diffraction of laser by narrow slit	Laser application for measurement of single slit	Board and tools	Monthly written, examination
7	18	Verify Boyle's law by measurement the pressure of the atmosphere	Boyle's law	Board and tools	Monthly written, examination

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lab manual
Main references (sources)	Medical physics, J, Cameron
Recommended books and references (scientific journals, reports...)	Medical physics, J, Cameron
Electronic References, Websites	Physics Undergraduate Lab

Course Description Form

1. Course Name:
Computer Science 2
2. Course Code:
503 04 113
3. Semester / Year:
Second semester/ 1ST year
4. Description Preparation Date:
4- February, 2025
5. **Available Attendance Forms**:
Official attendance hours
6. Number of Credit Hours (Total) / Number of Units (Total)
3 Hours per week / 2 Unit
7. Course administrator's name (mention all, if more than one name)
Lec. Dr. Safaa A. Al-Qaysi salqaysi@uomustansiriyah.edu.iq Assist. Lec. Ara M. Thomas ara.murad@uomustansiriyah.edu.iq Assist. Lec. Mohammed A. Hussein mohammedalbasrawi@uomustansiriyah.edu.iq

8. Course Objectives	
Course Objectives	• Utilize the computer for fundamental tasks. • Identify and discuss the hardware components of the computer system. • Creating documents using a word processor, spreadsheet applications and creating presentations • Identify networking basics, electronic communications and computer troubleshooting
9. Teaching and Learning Strategies	
Strategy	1-Lecture in class 2-Students participation in-class activities 3-Self-study and working assignments

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Types and components of computer systems, main components of computer systems, operating systems, types of computers	Introduction to Computers	Lecturing	Q/A
2	2	Input and Output devices, Input devices, Output devices and their uses	Computer Components	Slides and smart board	oral examination
3	2	Storage devices and media, optical media and storage, solid-state media and storage devices, the future of storage devices	Computer Components	Smart board and real hardware parts	Q/A

4	2	Operating system and graphical user interface. Using Mouse Techniques, Using Common Icons, Status bar, using Menus. Exploring Windows Operating system, Customizing Windows, changing settings	Operating System and User Interface	Lab computers and smart board	Practical Assignment
5	2	Working with Files and Folders, Selecting Files, Changing File Views, Preview a File, Copying Files, Renaming Files, Deleting a File, working with compressed folders	Operating System and User Interface	Lab computers and smart board	Practical Assignment
6	2	Word Processing Basics. Opening and Closing of Documents; Text Creation and Manipulation; Formatting of text; Table handling; Spell check; language setting and thesaurus; Printing of Word documents.	Word Processing	Smartboard and lab computers	Practical Assignment
7	2	Formatting of text; Table handling; Spell check; language setting and thesaurus; Printing of Word documents.	Word Processing	Lab computers and smartboard	Practical Assignment
8		Spread Sheet: Basics of Spreadsheets Manipulation of cells, Editing of SpreadSheets	Spreadsheet	Smartboard and lab computers	Practical Assignment
9	2	Spread Sheet: Formulas and Functions; Printing of Spread sheets	Spreadsheet	Smartboard and lab computers	Practical Assignment
10	2	Presentation Software: Basics of presentation software; creating presentation;	Presentation Software	Smartboard and lab computers	Practical Assignment
11	2	Preparation and presentation of slides; slide show; taking printout of presentations/ handouts	Presentation Software	Smartboard and lab computers	Practical Assignment
12	2	Introduction to Internet and Web browsers: computer network basics: LAN, WAN; concept of Internet and its applications; connecting to the Internet; World Wide Web; Web Browsing software; Search Engines; understanding URL, Domain URL, IP Address	Introduction to Internet and Web browsing	Smartboard and lab computers	Practical Assignment

13	2	Communications and Emails: basics of electronic mail, getting and email account; sending and receiving emails; accessing sent emails, using emails.	Communications and Emails	Smartboard and lab computers	Practical Assignment
14	2	Computer troubleshooting: identifying and solving common hardware and software problems that users encounter. Basic troubleshooting techniques and tools for diagnosing and resolving issues	Computer Troubleshooting	Smartboard and lab computers	Practical Assignment

11. Course Evaluation

The total grading is 100%, divided as follows:

1. Practical Assignments (20%)
2. Mid-Term Exam (20%)
3. Final exam (60%)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Graham Brown, David Watson, "Cambridge IGCSE Information and Communication Technology", 3rd Edition (2020)
Main references (sources)	https://edu.gcfglobal.org/en/word/
Recommended books and references (scientific journals, reports...)	Windows 10 Step by Step, 2nd Edition, By Joan Lamber, eBook ISBN: 978-1-5093-0679-4 Guy Hart-Davis , Teach Yourself VISUALLY Word 2019, ISBN: 978-1-119-72448-3
Electronic References, Websites	https://support.microsoft.com/en-us/office/word-for-windows-training-7bcd85e6-2c3d-4c3c-a2a5-5ed8847eae73

Course Description Form

1. **Course Name**:
Microbiology1
2. **Course Code**:
50304204
3. Semester / Year:
First and Second Semester / Second Year
4. Description Preparation Date
2-2025
5. Available Attendance Forms:
Formal Time
6. Number of Credit Hours (Total) / Number of Units (Total):
3
7. Course administrator's name (mention all, if more than one name)
Name: Prof. dr. Suhad faisal hatim E-mail: suhadhatim@uomustansiriyah.edu.iq Name: Prof. dr. Baydaa Hameed E-mail: baydaah.abdullah@uomustansiriyah.edu.iq Name: Lec. Zainab Farook Shafeeq E-Mail: zainabshfeeq@uomustansiriyah.edu.iq Name: Lec.Ahmed Isam E-Mail: ahmed.salman@uomustansiriyah.edu.iq Name: Assist Lec. Dhuha Khudair Kariem E-Mail: **dhuhaakhd.96@ uomustansiriyah.edu.iq** Name: Assist Lect. Marwah Lafta E-Mail: marwahjebur93@uomustainsiriyha.edu.iq Name: Assist Lec.Abeer Mahmood Shakier E-Mail: aberr.mahmood@uomustansiriyah.edu.iq
8. Course Objectives
- A study on the causes of bacterial diseases and limiting their spread. In addition to that, a study of the internal composition and characteristics of pathogens and their classification according to their genome and diagnostic methods, as well as a study of the factors affecting them, whether physical or chemical, and an extensive study of microbial diseases and the use of the best drugs affecting the microbes and how to control diseases and prevent their spread. 2- The curriculum is concerned with studying the body's various defense mechanisms against various pathogens
9. Teaching and Learning Strategies 1- Explaining the scientific material to students in detail (theoretical and practical) using the seminar method and focusing on the latest developments in the field of specialization. 2- Laboratory training, how to deal with forms sent and taken from the patient, and using the best techniques for diagnosis to give accurate results. 3- Participation of students in conducting diagnostic tests for types of bacteria, methods of staining and biochemical tests, and using a strategy of cooperation and assistance during the education process among students. 4- Discussing the results of the tests with the students
10. Course Structure : theoretical

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	٣	General information	Introduction	PPT slides & smart board	Reports Quizzes

		about bacteria			written exams
2	3	Study Physiology of bacteria	Bacterial physiology	PPT slides & smart board	Reports Quizzes written exams
3	3	Study bacterial metabolism	Bacterial metabolism	PPT slides & smart board	Reports Quizzes written exams
4	3	study Recombinant DNA biotechnology	Recombinant DNA biotechnology	PPT slides & smart board	Reports Quizzes written exams
5	Mid exam				
6	3	Study method of of Sterilization	Sterilization	PPT slides & smart board	Reports Quizzes written exams
7	3	studyChemotherapy and Antibiotic	Chemotherapy and Antibiotic		Reports Quizzes written exams
8	3	Studyof Staphylococci& Streptococcus spp	Staphylococci& Streptococcus spp	PPT slides & smart board	Reports Quizzes written exams
9	3	Study Aerobic Spore-forming bacteria	Aerobic Spore-forming bacteria		Reports Quizzes written exams
10	3	Study Clostridium perfringens	Clostridium perfringens	PPT slides & smart board	Reports Quizzes written exams
11	3	Study Corynebacterium diphtheria	Corynebacterium diphtheria	PPT slides & smart board	Reports Quizzes written exams
12	3	Study ycobacterium tuberculosis	Mycobacterium tuberculos	PPT slides & smart board	Reports Quizzes written exams
13	3	Study Chlamyadiae; Actinomycetes	Chlamyadiae; Actinomyce	PPT slides & smart board	Reports Quizzes written exams
14	3	Study Enterobacteriaceae ,E.coli Shigella; Salmonella;	Enterobacteriaceae ,E.coli Shigella; Salmonella; Prote	PPT slides & smart board	Reports Quizzes written exams

		Proteus			
15	3	Study Candida albicans	Candida albicans	PPT slides & smart board	Reports Quizzes written exams
Final exam					

Course Structure/ Practical

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Acquire a skill / Diagnosis pathogenic bacteria	Sterilization	PPT slides & Special kit for Bacterial diagnosis	Reports Quizzes written exams
2	2	Acquire a skill / Diagnosis pathogenic bacteria	Bacterial morphology& Smear preparation & simple stain	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
3	2	Acquire a skill / Diagnosis pathogenic bacteria	Gram stain	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
4	2	Acquire a skill / Diagnosis pathogenic bacteria	Spore stain & Acid fast stain	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
5	2	Acquire a skill / Diagnosis pathogenic bacteria	Cultivation microorganisms & Bacterial colony	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
6	2	Acquire a skill / Diagnosis pathogenic bacteria	Biochemical Tests I	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
7	2	Acquire a skill / Diagnosis pathogenic bacteria	Biochemical Tests II	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
8	2	Acquire a skill / Diagnosis pathogenic bacteria	API 20 E System	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
9	2	Acquire a skill / Diagnosis pathogenic bacteria	Antibiotic susceptibi test	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
10	2	Acquire a skill / Diagnosis pathogenic bacteria	Enterobacteriaceae	PPT slides& Special kit for Bacterial diagnosis	Reports Quizzes written exams
11	2	Acquire a skill /	Staphylococci&	PPT slides&	Reports

		Diagnosis pathogenic bacteria	Streptococcus spp.	Special kit for Bacterial diagnosis	Quizzes written exams

11. Course Evaluation	
Mid Exam: 20 marks Practical marks: 20 marks Final Exam: ٦0 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Reference text: 1.Medical Microbiology, 25 edition E .Jawetz, J.L. Melnick, E.A. Adel 2010 & 2. Principles of microbiology by Roland M.
Main references (sources)	-
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	-

Course Description Form

1. Course Name:
Physical pharmacy I
2. Course Code:
50303203
3. **Semester / Year**:
First semester/2nd year
4. Description Preparation Date:
5/2/2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours theoretical and 2 practice
7. Course administrator's name (mention all, if more than one name)
Name: Assistant Prof. Dr Ghaidaa Sulaiman Hameed Email: ghaidaahameed@uomustansiriyah.edu.iq Name:Lecturer Hiba Sabah Email: hibasabah@uomustansiriyah.edu.iq Name:Assist lecturer Marwa Malik Email: Marwa.malik@uomustansiriyah.edu.iq Assist Lucturer :Aqeel Abdulridha Khudhair Email : a.a.khudhair@uomustansiriyah.edu.i Assist Lect. Muna Yehia munayehia@uomustansiriyah.edu.iq
8. Course Objectives

Course Objective	1. Enabling students to gain and understand the degree of solubility and the phenomenon of distribution. 2: Enable students to obtain and understand the degree of reactions and the effect of temperature and other factors on the speed of the reaction. 3: Enable students to achieve the degree of viscosity of fluids and rheology. 4: Enable students to achieve and understand the properties of surfaces and colloidal solutions.

9. Teaching and Learning Strategies

Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Stats of matter	Ionic forces	Lecture/ theory	Oral discussion
2	3	Stats of matter	Liquid and solid state	Lecture/ theory	Oral discussion
3	3	Stats of matter	Garsous state	Lecture/ theory	Oral discussion
4	3	Thermodynamic	First low of thermodynamic	Lecture/ theory	Oral discussion

					Mid-term exam
5	3	Thermodynamic	Second low of thermodynamic	Lecture/ theory	Oral discussion
6	3	Thermodynamic	Third low of thermodynamic	Lecture/ theory	Oral discussion
7	3	Solution of non-electrolyte	Property	Lecture/ theory	Oral discussion
8	3	Solution of n electrolyte	Law and equations	Lecture/ theory	Oral discussion
9	3	Soln of electrolyte	Property	Lecture/ theory	Oral discussion
10	3	Soln of electrolyte	Law and equations	Lecture/ theor	Oral discussion
11	3	Ionic equilibria	Acid-base theory age	Lecture/ theor	Oral discussion
12	3	Ionic equilibria	Equations for differ cases	Lecture/ theor	Oral discussion
13	3	Buffer and isoto soln	Type and preparation	Lecture/ theor	Oral discussion
14	3	Buffer and isoto soln	Isotonic solution	Lecture/ theor	Oral discussion
15	3	Buffer and isoto soln	Calculations	Lecture/ theor	Oral discussion
Final exam					

11. Course Evaluation

Mid term Exam	15 marks
Quizzes and activities	5 marks
Practical	20 marks
Final Exam	60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Martin´s physical pharmacy and pharmaceutical sciences, Patrick J. Sinko . Wolters Kluwer. Lippincott Williams &Wilkins. Philadelphia. 2011
Main references (sources)	Lab manual for physical pharmacy adopted by the department.
Recommended books and references (scientific journals, reports...)	none
Electronic References, Websites	Library references

Course Description Form

1. Course Name:	
Organic chemistry II	
2. Course Code:	
50302202	
3. Semester / Year:	
First and Second Semester / Second Year	
4. Description Preparation Date:	
March 2025	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45h Theoretical + 30h Practical / 4 Units	
7. Course administrator's name (mention all, if more than one name)	
Prof. Dr. Ayad Kareem Khan	kareem_ayad@uomustansiriyah.edq.iq
Assist. Prof. Dr Hiba Ali Hasan	hibaalichemist@uomustansiriyah.edu.iq
Dr. Basma Munjid Abdulraziq	basma_m.abd_razik@uomustansiriyah.edu.iq
Lecturer Dr. Zina Hussein Ali	
Assist. Lect. Enas Abd Ali Mushen	enas.abdali@uomustansiriyah.edu.iq
Lect. Sura Sadeq Raoof	Suras.raoff@uomustansiriyah.edu.iq
Assist. Lect. Hawazin Aziz	hawazinaziz@uomustansiriya.edu.iq
8. Course Objectives	
Course Objectives	1.Statement of the basic principles in organic chemistry. 2.Conducting practical experiments of theoretical concepts. 3.Preparing short reports. 4.Enabling the students to develop knowledge and laboratory skills through laboratory work and by using many chemical technologies and devices.
9. Teaching and Learning Strategies	
Strategy	1.Be able to explain the reactivity of substituted aromatic compounds. 2.Be looking to the relationship between aromatic structure and reactivity. 3.To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. 4.It includes understanding the basic structure and properties of Benze Aromatic compounds, Carboxylic acids, Functional derivatives of carboxy acids, Aldehydes, Ketones, Phenols and Amines, in addition to the princip and application of these

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
quiz	Lectures	Benzene and aromatic compounds	Synthesis	3	1
quiz	Lectures	Electrophilic Aromatic Substitution	reaction	3	2

quiz	Lectures	Phenols I	Synthesis and reaction	3	3
quiz	Lectures	Phenols II	Synthesis and reaction	3	4
quiz	Lectures	Carboxylic acids I	Synthesis and reaction	3	5
quiz	Lectures	Carboxylic acids II	Synthesis and reaction	3	6
quiz	Lectures	Functional Derivatives of Carboxylic acids I	Synthesis and reaction	4.5	7
Mid Examination					8
quiz	Lectures	Functional Derivatives of Carboxylic acids II	Synthesis and reaction	3	9
quiz	Lectures	Aldehydes I	Synthesis and reaction	3	10
quiz	Lectures	Aldehydes II	Synthesis and reaction	3	11
quiz	Lectures	Ketones	Synthesis and reaction	3	12
quiz	Lectures	Amines I	Synthesis and reaction	3	13
quiz	Lectures	Amines II	Synthesis and reaction	3	14

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	- R.T. Morrison and R.N. Boyd "Organic Chemistry" 7th Edition Prentice Hall, Inc. India (2011).
Main references (sources)	John McMurry "Organic Chemistry" 9th Edition Thomson Learning, Inc. USA (2016).
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Google searching for organic chemistry

Course Description Form

1. Course Name:

Physiology

2. Course Code:

50301201 Physiology I
50301206 Physiology II

3. Semester / Year:

First and second semester
Second stage

4. Description Preparation Date:

4/2/2025

5. Available Attendance Forms:

Official working hours

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

First course: 120 theoretical hours (2 units) + 126 practical hours (1 unit)
Second course: 132 theoretical hours (2 units) + 126 practical hours (1 unit)

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

Name: Dr. Jehan Mahmood rajab
Name: Dr. Raghad Abdulmahdi Mohsin
Name: Mohameed Hayder Asker
Email: moh.hayder@uomustansiriyah.edu.iq
Name: Ayat Abduljaleel Nsaif
Email: Ayat.abd@uomustansiriyah.edu.iq
Name: Nagham sadie
Email: Naghamsaadi@uomustansiriyah.edu.iq
Name: zeena Saleem zamil
Email: zeena90@uomustansiriyah.edu.iq
Name: Mustafa Riyadh Abdulla
Email: mustafa.r.a@uomustansiriyah.edu.ig
Name: Noor Alhuda Salah Hashim
Email: duha.bayram@uomustansiriyah.edu.iq
Name:Marwa Mohammed Nasri
Email: Marow.teme@uomustansiriyah.edu.iq

8. Course Objectives

Course Objectives	• Enabling students to possess the skills to work in laboratories and conduct practical experiments • Enabling students to possess the abilities to use modern equipment and technologies related to pharmaceutical sciences • Enabling students to possess the skills of using scientific research tools in the academic and practical fields • Enabling students to possess dialogue and discussion skills • Enabling students to possess self-learning skills

9. Teaching and Learning Strategies

Strategy	1- Show educational videos 2- Seminar 3- Using means of illustration such as models, pictures, and diagrams 4- Preparing scientific reports by students

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester/Theoretical					

1	12	Gastrointestinal function: Digestion and absorption of carbohydrates; proteins; lipids.	Digestive system	smart board	oral questions and written exams
2	12	Introduction; gastrointestinal hormones	Regulation of gastrointestinal function	smart board	oral questions and written exams
3	12	Label on a diagram the four main regions of the stomach, its curvatures, and its sphincter Identify the four main types of secreting cells in gastric glands, and their important products. Describe the location and structure of the pancreas, and the morphology and function of the pancreatic islets Compare and contrast the functions of insulin and glucagon	Stomach; exocrine portion of the pancreas.	smart board smart board	oral questions and written exams
4	12	Classify body fluid compartments Explain composition of body fluid	Circulatory body fluid	smart board	oral questions and written exams
5	12	Compare and contrast the morphology, cytoplasmic contents and functions of neutrophils, monocytes, eosinophils, and basophils.	White blood cells	smart board	oral questions and written exams
6	12	vitamins and minerals.	Absorption of water and electrolytes	smart board	oral questions and written exams
7	12	Describe the structures of the mouth, including its three accessory digestive organs	Mouth and esophagus.	smart board	oral questions and written exams
8	12	Review anatomy and histology of the normal liver, intestine; colon.	Liver and biliary system; small intestine; colon.	smart board	oral questions and written exams
9	12	To learn what bone marrow transplant and peripheral blood stem cell transplant are and how they are used as a treatment for some diseases	Bone marrow	smart board	oral questions and written exams

10	12	Distinguish between innate and acquired immunity	Immunity	smart board	oral questions and written exams
First Semester/ Practical					
1	18	To study the parts of a compound microscope, view the hemocytometer slides under microscope, and to calculate real abject size seen in specific field of the microscope.	Microscope	smart board	oral questions and written exams
2	18	The student will prepare a blood smear, which is even, smooth and have an acceptable feathered edge. To become familiar with the various types of white blood cells	The Differentia Leukocyte Cou (DLC)	smart board	oral questions and written exams
3	18	To measure the tendency of th erythrocyte to hemolyse unde stress	Osmotic Fragili Test	smart board	oral questions and written exams
4	18	Differentiate between the central, autonomic, and peripheral nervous systems and the common disorders associated with each Explain and categorize seizure activity, and report common therapeutic interventions	Nervous system	smart board	oral questions and written exams
5	18	determine how well your lung work. They determine how much air goes into and out of your lungs	Lung function tests	smart board	oral questions and written exams
6	18	Determine the normal and unnormal composition of urine	General urine examination	smart board	oral questions and written exams
7	18	The learner will be able to recognize and measure the P wave, QRS complex, T-wave, PR interval, and QT interval.	Electrocardiogr hy (ECG)	smart board	oral questions and written exams
8	18	Describe what blood pressure is and how high blood pressure can impact the cardiovascular system. Explain how heart valves work, as well as how they are related to blood pressure.	Determination c Blood Pressure	smart board	oral questions and written exams
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily					

preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Vander's human physiology-The Mechanisms Body Function .Latest edition
Main references (sources)	uman Physiology for Pharmacy, 2"d Edition. Textbook of Medical Physiology by Guyton AC; latest edition.
Recommended books and references (scientific journals, reports...)	Resources related to physiology field from the Inter or other recent books
Electronic References, Websites	1- Youtube.com 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:
Computer Science II
2. Course Code:
503 04 2 12 503 04 214
3. Semester / Year:
First and Second Semester / Second Year
4. Description Preparation Date:
2/2025
5. Available Attendance Forms:
Attendance form
6. Number of Credit Hours (Total) / Number of Units (Total)
(30) Hours per week / (1) Units
7. Course administrator's name (mention all, if more than one name)
Name: Safaa Abdulsattar Oudah Email: salqaysi@uomustansiriyah.edu.iq Name: Tareq Naser Mahdi Email: tareq.nmg@uomustansiriyah.edu.iq Name: Hashim Sachit Dewan Email: hashimru@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	• Learn to use MS Office • Dealing with mathematical functions • Design tables data filters • Design charts for data
9. Teaching and Learning Strategies	
Strategy	Use lectures in the classroom with PowerPoint presentation , smart TV and lab training.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to Microso PowerPoint	Introduction to PowerPoint	Lab Training	Quizzes, Assignments, and Homework
2	2	PowerPoint Essentials	Learn PowerPoi commands	Lab Training	Quizzes, Assignments, and Homework
3	2	Presentation Basics	Presentation Bas	Lab Training	Quizzes, Assignments, and Homework
4	2	Working With Text	Working With T	Lab Training	Quizzes, Assignments, and Homework

5	2	Designing A Presentatic	Designing A Presentation	Lab Training	Quizzes, Assignments, Homework
6	2	Adding Tables To Slide	Adding Tables To Slides	Lab Training	Quizzes, Assignments, Homework
7	2	Using Charts In A Presentation	Using Charts In A Presentation	Lab Training	Quizzes, Assignments, Homework
8	2	Creating SmartArt Graphics	Creating SmartArt Graphics	Lab Training	Quizzes, Assignments, Homework
9	2	Adding Graphics To A Presentation	Adding Graphics To A Presentation	Lab Training	Quizzes, Assignments, Homework
10	2	Using Animation A Multimedia	Using Animation And Multimedia	Lab Training	Quizzes, Assignments, Homework
11	2	Securing And Sharing Presentation	Securing And Sharing A Presentation	Lab Training	Quizzes, Assignments, Homework
12	2	Delivering A Presentati	Delivering A Presentation	Lab Training	Quizzes, Assignments, Homework
13	2	Slide Show Delivering	Slide Show Delivering	Lab Training	Quizzes, Assignments, Homework
14	2	Video Delivering	Video Delivering	Lab Training	Quizzes, Assignments, Homework
15	2	Image Delivering	Image Deliverin	Lab Training	Quizzes, Assignments, Homework
Second Semester					
1	2	Introduction to Statistical Computing in Microsoft Excel	Introduction to Excel	Lab Training	Quizzes, Assignments, and Homework
2	2	Importing/Accessing Data	Importing/Accessing Data	Lab Training	Quizzes, Assignments, and Homework
3	2	Data Analysis	Data Analysis	Lab Training	Quizzes, Assignments, and Homework
4	2	How to compute such statistics	How to compute such statistics	Lab Training	Quizzes, Assignments, and Homework
5	2	formula errors in Exce	formula errors in Excel	Lab Training	Quizzes, Assignments, and Homework

6	2	Accessing the data analysis tools	Accessing the data analysis tools	Lab Training	Quizzes, Assignments, and Homework
7	2	Mathematical Functions	Mathematical Functions	Lab Training	Quizzes, Assignments, and Homework
8	2	Advanced Mathematical Functions	Advanced Mathematical Functions	Lab Training	Quizzes, Assignments, and Homework
9	2	Design Tables	Design Tables	Lab Training	Quizzes, Assignments, and Homework
10	2	Table Formatting	Table Formatting	Lab Training	Quizzes, Assignments, and Homework
11	2	Design List	Design List	Lab Training	Quizzes, Assignments, and Homework
12	2	Hyperlinks	Using Hyperlinks	Lab Training	Quizzes, Assignments, and Homework
13	2	Data Validation	Using Data Validation	Lab Training	Quizzes, Assignments, and Homework
14	2	Conditional Formattin	Using Conditional Formatting	Lab Training	Quizzes, Assignments, and Homework
15	2	Charts	Design Charts	Lab Training	Quizzes, Assignments, and Homework

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks	Learn Microsoft Office 2019: A comprehensive guide to gett started with Word, PowerPoint, Excel, Access, and Outlook
Main references	Lab. Manual for Practical Computer Science.
Recommended books and references	
Electronic References, Websites	https://www.agitraining.com/books/microsoft-windows-books

Course description form

1. Course name
The crimes of the Ba'ath Party in Iraq
2. Course code
503 04 2 17
3. Semester / Year:
First and Second Semester / Second Year
4. Description Preparation Date:
2-2025
5. Available Attendance Forms: Online
Electronic
6. Number of Credit Hours (Total) / Number of Units (Total)
2/2
7. Course administrator's name (mention all, if more than one name)
Lec. Dr. Raghad Shakir Jassim raghadshakei9@uomustansiriyah.edu.iq Lec. Mohammed Qassim Mohammed mohammed.qassim@uomustansiriyah.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

• Deliverance and presentation • Discussions	Strategy

10- Course Structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
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.	Theoretical	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	Theoretical	Discussion
3	2	Providing students with information about the	Types of	Theoretica	Discussion

		types of international crimes	international crimes	l	
4	2	Providing students with information about the decisions issued by the Criminal Court and the decisions issued by the Criminal Court	Psychological and social crimes and their effects	Theoretica l	Discussion
5	2	Students acquire information about psychological crimes, their mechanisms and effects of psychological crimes	the most prominent violations of the Ba'ath party in Iraq	Theoretica l	Discussion
6	2	Providing students with information about social crimes, the militarization of society, violations of Iraqi laws	violations of Iraqi laws	Theoretica l	Discussion
7	3	the position of the Baathist regime on religion, violations of Iraqi laws	Social crimes	Theoretica l	Discussion
8-9	Mid-term				
10	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	Crimes of authority	Theoretica l	Discussion
11	2	Students acquire information about the environmental crimes of the Baath regime, military and radioactive pollution, and mine explosions.	The environmental crimes of the Baath regime in Iraq	Theoretica l	Discussion
12	2	Students gain information about the destruction of cities and villages, the draining of marshes, the leveling of orchards	the scorched earth policy	Theoretica l	Discussion
13	2	Students acquire information about mass	Mass grave crimes	Theoretica	Discussion

		grave crimes		l	
14	2	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	The events of the genocide graves committed by the Baathist regime in Iraq		Discussion
15	Final				

11. **Course Evaluation**
The total grading is 100%, divided as follows: 1. Attendance (10%) 2. Mid-Term Exam (30%) Final exam (60%)
12. **Learning and Teaching Resources**
isterial Decision/Crimes of the Baath regime in Iraq

Course Description Form

1. Course Name:
Physical pharmacy II
2. Course Code:
50303208
3. **Semester / Year**:
Second semester/2nd year
4. Description Preparation Date:
5/2/2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours theoretical and 2 practice
7. **Course administrator's name (mention all, if more than one name**)
Name: Assistant Prof. Dr Ghaidaa Sulaiman Hameed Email: ghaidaahameed@uomustansiriyah.edu.iq Name: Assistant Prof. Anas Tarik Nafei Email: pharm.anas.alhamdany@uomustansiriyah.edu.iq Name:Lecturer Hiba Sabah Email: hibasabah@uomustansiriyah.edu.iq Name:Assist lecturer Marwa Malik Email: Marwa.malik@uomustansiriyah.edu.iq Assist Lucturer :Aqeel Abdulridha Khudhair Email : a.a.khudhair@uomustansiriyah.edu.i
8. Course Objectives
Course Objectives: 1: Enabling students to achieve and understand the degree of solubility and the phenomenon of distribution. 2: Enabling students to obtain and understand the degree of reactions and the effect of temperature and other factors on the speed of the reaction. 3: Enable students to achieve the degree of viscosity of fluids and rheology. 4: Enable students to achieve and understand the properties of surfaces and colloidal solutions
9. Teaching and Learning Strategies
Strategy: Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Solubility	Measurement	Lecture/ theor	Oral discussion
2	3	Solubility	Types definition	Lecture/ theor	Oral discussion
3	3	Solubility	Factors affecting	Lecture/ theor	Oral discussion
4	3	Kinetics	Order of the reaction	Lecture/ theor	Oral discussion
Mid-term exam					
5	3	Kinetics	Detection the order	Lecture/ theor	Oral discussion

6	3	Kinetics	Stability study	Lecture/ theor	Oral discussion
7	3	Rheology	Property	Lecture/ theor	Oral discussion
8	3	Rheology	Newtonian system	Lecture/ theor	Oral discussion
9	3	Rheology	Non Newtonian system	Lecture/ theor	Oral discussion
10	3	Rheology	Applications	Lecture/ theor	Oral discussion
11	3	Surface tension	Types	Lecture/ theor	Oral discussion
12	3	Surface tension	Effect of liquid mixing	Lecture/ theor	Oral discussion
13	3	Surface tension	HLB scale	Lecture/ theor	Oral discussion
14	3	Colloid	Types of colloid	Lecture/ theor	Oral discussion
15	3	Colloid	Applications	Lecture/ theor	Oral discussion
					Final exam

11. Course Evaluation

Mid term Exam	15 marks
Quizzes and activities	5 marks
Practical	20 marks
Final Exam	60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Martin´s physical pharmacy and pharmaceutical sciences, Patrick J. Sinko . Wolters Kluwer. Lippincott Williams &Wilkins. Philadelphia. 2011
Main references (sources)	Lab manual for physical pharmacy adopted by the department.
Recommended books and references (scientific journals, reports...)	none
Electronic References, Websites	Library references

Course Description Form

1. Course Name:
Organic chemistry III
2. Course Code:
50302207
3. Semester / Year:
2nd stage / 2nd course
4. Description Preparation Date:
March 2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
30h Theoretical + 30h Practical / 3 Units
7. Course administrator's name (mention all, if more than one name)
Prof. Dr. Ayad Kareem Khan kareem_ayad@uomustansiriyah.edq.iq Dr. Basma Munjid Abdulraziq basma_m.abd_razik@uomustansiriyah.edu.iq Lecturer Dr. Zina Hussein Ali Assist. Lect. Enas Abd Ali Mushen enas.abdali@uomustansiriyah.edu.iq Lect. Sura Sadeq Raoof Suras.raoff@uomustansiriyah.edu.iq Assist. Lect. Hawazin Aziz hawazinaziz@uomustansiriya.edu.iq
8. Course Objectives
Course Objectives To enable students to understand the chemistry Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products. I (Theory) on these compounds
9. Teaching and Learning Strategies
Strategy •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. To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration
10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
quiz	Lectures	Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products. I (Theory)		2	**1**
quiz	Lectures	Heterocyclic system: Classes of heterocyclic systems; general structures; properties;		2	2

		Occurrence in nature and in medicinal products. II			
quiz	Lectures	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. I	Synthesis and reaction	2	3
quiz	Lectures	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. II	Synthesis and reaction	2	4
quiz	Lectures	Source of pyrrole, furan and thiophen. I	Synthesis and reaction	2	5
quiz	Lectures	Source of pyrrole, furan and thiophen. II	Synthesis and reaction	2	6
quiz	Lectures	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation. I	reaction	2	7
Mid Examination					8
quiz	Lectures	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation. II	reaction	2	9
quiz	Lectures	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine. I	Synthesis and reaction	2	10
quiz	Lectures	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine. II	Synthesis and reaction	2	11
quiz	Lectures	Saturated five-membered heterocyclic compounds I		2	12
quiz	Lectures	Saturated five-membered heterocyclic compounds II		2	13
quiz	Lectures	Heterocyclic of five & six member rings with two & three heteroatoms.	Synthesis and reaction	2	14

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	- R.T. Morrison and R.N. Boyd "Organic Chemistry" 7th Edition Prentice Hall, Inc. India (2011).
Main references (sources)	John McMurry "Organic Chemistry" 9th Edition Thomson Learning, Inc. USA (2016).
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Google searching for organic chemistry

Course Description Form

1. Course Name:
Pharmacognosy I
2. Course Code:
50306211
3. Semester / Year:
2nd stage / 2nd course
4. **Description Preparation Date**:
4/2/2025
5. **Available Attendance Forms**:
Attendance
6. **Number of Credit Hours (Total) / Number of Units (Total)**
3hrs. Theoretical, 2hrs. practical (5) hrs / 4unit
7. Course administrator's name (mention all, if more than one name)

Name: Email;

Theoretical Lect.

Dr. Samraa Abdulhadi samra.bio@uomustansiriyah.edu.iq

Asst Lect. Wasan Mohammed wasanmohammed@uomustansiriyah.edu.iq

Dr.hiba ali hussin

Practical lect

Asst.Lect. Khadija fahim

Asst.Lect. Lubna ammer lubna.amer@uomustansiriyah.edu.iq

Asst.Lect.Duaa Abass duaa19882013@uomustansiriyah.edu.iq

Asst.Lect.adil Humood adilbioplant@uomustansiriya.edu.iq

Lect.Dr. Ahmed Galib ghalibahmed443@uomustansiriyah.edu.iq

Zena alaa

8. Course Objectives	
Course Objectives	The aims include • the study pharmacognosy and medicinal plants in terms of nomenclature and classification, • as well as the study of plant chemistry, which includes extraction and isolation of active compound .
9. Teaching and Learning Strategies	
Strategy	1- Presentation and delivery 2- Interactive discussions 3- Brainstorming 4- Research and induction 5- Field visits to institutions and entities related to the pharmacist's work 6- Volunteer work, seminars and workshops

10. Course Structure of Pharmacognocy I/ Theoretical/ 2nd stage /2nd course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	Three hrs.	Definition	General introduction of Pharmacognosy	Teaching style	Estimation way
2.	Three hrs.	Definition and using	Sources of natural drugs, natural	Theoretical lectures	Oral exams and discussion

			drugs, official and non official drugs		
3.	Three hrs.	Definition and using	Classification if natural products	Theoretical lectures	Oral exams and discussion
4.	Three hrs.	Definition and using	Plant nomenclature and classification	Theoretical lectures	Oral exams and discussion
5.	Three hrs.	Definition	Cultivation, collection, drying, and storing of natural drugs	Theoretical lectures	Oral exams and discussion
6.	Three hrs.	Definition and using	Degradation of natural products	Theoretical lectures	Oral exams and discussion
7.	Three hrs.	Definition and using	The pharmacological effectiveness of natural products	Theoretical lectures	Oral exams and discussion
8.	Three hrs.	Definition and using	Phyctochemistry of natural products	Theoretical lectures	Oral exams and discussion
9.	Three hrs.	Definition	Quality control: evaluation of natural products microscopically, physically, chemically, biologically, and spectroscopically	Theoretical lectures	Oral exams and discussion
10.	Three hrs.	Definition	Separation techniques: introduction, separation mechanism, classifications depending on type of techniques	Theoretical lectures	Oral exams and discussion
11.	Three hrs.	Definition	TLC	Theoretical lectures	Oral exams and discussion
12.	Three hrs.	Definition	Gel chromatography	Theoretical lectures	Oral exams and discussion
13.	Three hrs.	Definition	Column chromatography	Theoretical lectures	Oral exams and discussion
14.	Three hrs.	Definition	Gas chromatography	Theoretical lectures	Oral exams and discussion
15.	Three hrs.	Definition	Plant Tissue culture	Theoretical lectures	Oral exams and discussion

11. Course Structure of Pharmacognocy I/ practical/ 2nd stage /2nd course					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1.	2hrs.	Required learning outputs	Subject or Unit title	Practical	Estimation way
2.	2hrs.	Technique and use	Medicinal plants	Practical	Oral exams and discussion
3.	2hrs.	Technique and use	Microscopical examinationof natural products and cell contents	Practical	Oral exams and discussion
4.	2hrs.	Technique and use	Extraction and separation techniques	Practical	Oral exams and discussion
5.	2hrs.	Technique and use	chromatography	Practical	Oral exams and discussion
6.	2hrs.	Technique and use	Paper chromatography	Practical	Oral exams and discussion
7.	2hrs.	Technique and use	TLC	Practical	Oral exams and discussion
8.	2hrs.	Technique and use	TLC on microscope slides	Practical	Oral exams and discussion
9.	2hrs.	Technique and use	Color separation for volatile oil	Practical	Oral exams and discussion

12. Course evaluation

Theoretical Course work: 20marks + Practical: 20 marks = 40 marks
Final Exam = 60 marks
Total = 100 marks

13.Learning and Teaching Resources	
Textbooks	1-Trease and Evans Pharmacognosy; 15th ed., 2009 (For theoretical) 2-Practical manual / second stage Pharmacognosy . (For practical)
References	Michael Heinrich, Joanne Barnes; Fundamentals of pharmacognosy and phytotherapy 2017
Recommended literatures	Fundamentals of pharmacognosy and phytotherapy.
Internet websites and electronic references	Google for searching about medicinal plants

Course Description Form

1. Course Name:

Physiology

2. Course Code:

50301201 Physiology I
50301206 Physiology II

3. Semester / Year:

First and second semester
Second stage

4. Description Preparation Date:

4/2/2025

5. Available Attendance Forms:

Official working hours

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

First course: 120 theoretical hours (2 units) + 126 practical hours (1 unit)
Second course: 132 theoretical hours (2 units) + 126 practical hours (1 unit)

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

Name: Dr. Jehan Mahmood rajab
Name: Dr. Mohameed Hayder Asker
Name: Dr. Mustafa Riyadh Abdulla
Email: moh.hayder@uomustansiriyah.edu.iq
Name: Ayat Abduljaleel Nsaif
Email: Ayat.abd@uomustansiriyah.edu.iq
Name: Nagham sadie
Email: Naghamsaadi@uomustansiriyah.edu.iq
Name: zeena Saleem zamil
Email: zeena90@uomustansiriyah.edu.iq
Name: Noor Alhuda Salah Hashim
Email: duha.bayram@uomustansiriyah.edu.iq
Name:Marwa Mohammed Nasri
Email: Marow.teme@uomustansiriyah.edu.iq

8. Course Objectives

Course Objectives	• Enabling students to possess the skills to work in laboratories and conduct practical experiments • Enabling students to possess the abilities to use modern equipment and technologies related to pharmaceutical sciences • Enabling students to possess the skills of using scientific research tools in the academic and practical fields • Enabling students to possess dialogue and discussion skills • Enabling students to possess self-learning skills

9. Teaching and Learning Strategies

Strategy	1- Show educational videos 2- Seminar 3- Using means of illustration such as models, pictures, and diagrams 4- Preparing scientific reports by students

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester/Theoretical					
1	3	Gastrointestinal function: Digestion and absorption	Digestive system	smart board	oral questions

		of carbohydrates; proteins; lipids.			and written exams
2	3	Introduction; gastrointestinal hormones	Regulation of gastrointestinal function	smart board	oral questions and written exams
3	3	Label on a diagram the four main regions of the stomach, its curvatures, and its sphincter Identify the four main types of secreting cells in gastric glands, and their important products. Describe the location and structure of the pancreas, and the morphology and function of the pancreatic islets Compare and contrast the functions of insulin and glucagon	Stomach; exocrine portion of the pancreas.	smart board smart board	oral questions and written exams
4	3	Classify body fluid compartments Explain composition of body fluid	Circulatory body fluid	smart board	oral questions and written exams
5	3	Compare and contrast the morphology, cytoplasmic contents and functions of neutrophils, monocytes, eosinophils, and basophils.	White blood cells	smart board	oral questions and written exams
6	3	vitamins and minerals.	Absorption of water and electrolytes	smart board	oral questions and written exams
7	3	Describe the structures of the mouth, including its three accessory digestive organs	Mouth and esophagus.	smart board	oral questions and written exams
8	3	Review anatomy and histology of the normal liver, intestine; colon.	Liver and biliary system; small intestine; colon.	smart board	oral questions and written exams
9	3	To learn what bone marrow transplant and peripheral blood stem cell transplant are and how they are used as a treatment for some diseases	Bone marrow	smart board	oral questions and written exams
10	3	Distinguish between innate and acquired	Immunity	smart board	oral questions

		immunity			and written exams
First Semester/ Practical					
1	2	To study the parts of a compound microscope, view the hemocytometer slides under microscope, and to calculate real abject size seen in specific field of the microscope.	Microscope	smart board	oral questions and written exams
2	2	The student will prepare a blood smear, which is even, smooth and have an acceptable feathered edge. To become familiar with the various types of white blood cells	The Differentia Leukocyte Cou (DLC)	smart board	oral questions and written exams
3	2	To measure the tendency of th erythrocyte to hemolyse unde stress	Osmotic Fragili Test	smart board	oral questions and written exams
4	2	Differentiate between the central, autonomic, and peripheral nervous systems and the common disorders associated with each Explain and categorize seizure activity, and report common therapeutic interventions	Nervous system	smart board	oral questions and written exams
5	2	determine how well your lung work. They determine how much air goes into and out of your lungs	Lung function tests	smart board	oral questions and written exams
6	2	Determine the normal and unnormal composition of urine	General urine examination	smart board	oral questions and written exams
7	2	The learner will be able to recognize and measure the P wave, QRS complex, T-wave, PR interval, and QT interval.	Electrocardiogr hy (ECG)	smart board	oral questions and written exams
8	2	Describe what blood pressure is and how high blood pressure can impact the cardiovascular system. Explain how heart valves work, as well as how they are related to blood pressure.	Determination o Blood Pressure	smart board	oral questions and written exams
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc					
12. Learning and Teaching Resources					

Required textbooks (curricular books, if any)	Vander's human physiology-The Mechanisms Body Function .Latest edition
Main references (sources)	uman Physiology for Pharmacy, 2"d Edition. Textbook of Medical Physiology by Guyton AC; latest edition.
Recommended books and references (scientific journals, reports...)	Resources related to physiology field from the Inter or other recent books
Electronic References, Websites	1- Youtube.com 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:	
Medical Microbiology-2/2nd semester	
2. Course Code:	
50304209	
3. **Semester / Year**:	
2nd stage / 2nd course	
4. **Description Preparation Date:**	
5/2/2025	
5. **Available Attendance Forms**:	
Attendance	
6. **Number of Credit Hours (Total) / Number of Units (Total)**	
3 hr. 2 hr. Lab	
7. Course administrator's name (mention all, if more than one name)	
Prof. Dr. Ahmed Ali Mohammed Email: ahmedmohammed@uomustansiriyah.edu.iq Prof. Dr. Baydaa Hameed Asst. Prof. Dr. Suzan Yousif Jasim Lec. Ahmed Isam Lec. Ishraq Hasan Asst Lec. Dhuha Khudair Kariem Asst Lec.Abeer Mahood Shakier Asst. Lec. Marwa Laftah	
8. Course Objectives	
Course Objectives	1-studying the causes parasites ,viruses ,immune diseases and diagnose, life cycle,types,treatment 2- studying the internal structure of the pathogens and their characteristics, classification according to their genomic component and studying the factors affecting them, whether they are physical or chemical, as well as an extended study to the microbial diseases and use the more effective drugs according to the site of influence in the life cycle of the pathogens. 3- The curriculum is also concerned with studying the body's different mechanisms of defense against the different pathogens and studying the immune diseases
9. Teaching and Learning Strategies	
Strategy	1. Using seminars and focusing on the latest developments in the field of specialization 2. Using the laboratory training and how to deal with the samples taken from the patients and using the best technology that giving sensitive and accurate results. 3-help the students to deal with diagnose, biochemical , immunological testes with cooperative strategies between them during learning 4-The scientific discussion in the classroom by asking questions related to the topic or discussion the test results 5-The theoretical lectures which depend on the lecturer and

	his scientific background and professionalism in this field.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Students acquire information in the field of parasites to the required level Students acquire General information in immunology	-Introduction to medical parasitology and definitions, Types of Parasites, Diagnosis of Parasitic diseases -General information in immunology	Slide show and smart board	Sudden oral exam, -repo -written exam
2	3	Students acquire information in the field of parasites to the required level Students acquire information the Innat and adaptive- immuni	The groups of the-parasites: ProtozoaAmoebae: Entamoeba histolytica, Entamoeba coli, Entamoeba gingivalis, Endolimax nana, Iodamoeba butschlii Innate and adaptive-mmunity	Slide show and smart board	-Sudden oral exam, -report, -written exam
3	3	Students acquire information in the fiel of viruses to the requi level Students acquire information About antigens	-Introduction to Virology, classification, and pathogenesis Antiviral chemotherapy Antigen characteristic-	Slide show and smart board	-Sudden oral exam, -report, - written exam
4	3	Students acquire information in the field of parasites to the required level Students acquire information About antibodies	Protozoa-Flagellates-Part I: The flagellates of digestive tract and genital organs, Ciliates: Balantidium coli Antibody characteristic	Slide show and smart board	-Sudden oral exam, -report, - written exam
5	3	Students acquire information in the field of parasites to the required level Students acquire information bout B and T cells	Protozoa-Flagellates-Part II: Blood and tissue flagellates: Leishmania sp., Trypanosoma sp. - B and T cells	Slide show and smart board	-Sudden oral exam, -report, - written exam

6	3	Students acquire information in the fiel of viruses to the required level Students acquire information About complement an is role in immunity	Herpesviruses and - hepatitis viruses - Complement	Slide show and smart board	-Sudden oral exam, -report, - written exam
Mid exam					
7	3	Students acquire information in the field of parasites to the required level Students acquire information About Hypersensitivity types	-Protozoa-Sporozoa- Part I: Malaria Parasites Hypersensitivity types	Slide show and smart board	-Sudden oral exam, -report, - written exam
8	3	Students acquire information in the field of parasites to the required level Students acquire information echanisms of y against cancer	Protozoa-Sporozoa- Part II: Toxoplasmosis -Oncogenic immunity	Slide show and smart board	-Sudden oral exam, -report, - written exam
9	3	tudents acquire information in the field of viruses to the required level Students acquire information ut Autoimmune disease	Orthomyxovirus and- coronavirus - Autoimmune disease	Slide show and smart board	-Sudden oral exam, -report, ten exam
10	3	tudents acquire information in the field of parasites to the equired level Students acquire information out immune deficiency - diseases	Helminths- Trematodes, Blood flukes (Schistosomes) Immune deficiency - diseases -1	Slide show and smart board	-Sudden oral exam, -report, - written exam
11	3	tudents acquire information in the fie of parasites to the equired level	Helminths-Cestodes (Tapeworms), Adult Tapeworm Infections: Taenia saginata, Taenia solium, Hymenolepis na Helminths-Larval Tapeworm Infections:	Slide show and smart board	-Sudden oral exam, -report, en exam

			Echinococcus granulosus E. multilocularis		
12	3	Students acquire information bout Immune deficiency diseases-	Immune deficiency diseases-	Slide show and smart board	-Sudden oral exam, -report, - written exam
13	3	Students acquire information in the field of viruses to the required level	Retro viruses	Slide show and smart board	-Sudden oral exam, -report, - written exam
14	3	Students acquire information in the field of parasites to the required level	Helminths: Nematodes: Ascaris lumbricoides, Hook worms Ancylostoma duodenale, Necator americanus, Enterobius vermicularis	Slide show and smart board	-sudden oral exam, -report,
Final exam					

Wee	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	tudents acquire information in the field of parasites the required level	Fecal Examination& Specimen Collection	PPT slides, smart board	written exams, daily written, oral exams, quizzes
2	2	Students acquire information in the field of parasites to the required level	Parasite/Protozoa /Amebae *Entamoeba histolytica/ Entamoeba coli*	PPT slides, smart board	written exams, daily written, oral exams, quizzes
3	2	Students acquire information in the field of parasites to the required level	flagellates of the digestive tract and genital organs *Giardia/Trichomonas*	PPT slides, smart board	written exams, daily written, oral exams, quizzes
4	2	Students acquire information in the field of parasites to the required level	flagellates of the blood and tissues / *Leishmania*/	PPT slides, smart board	written exams, daily written, oral exams, quizzes
5	2	Students acquire information in the field of parasites to the required level	Parasite/protozoa/ Sporozoa /*Plasmodium*/ *Toxoplasma*	PPT slides, hart board	ritten exams, ily written, al exams, quizzes
6	2	Students acquire information in the field of parasites to the required level Students acquire information in the field of parasites tothe required level	Parasite/protozoa/ ciliates/*Balantidium*	PPT slides, hart board	ritten exams, ily written, al exams, quizzes

7	2	tudents acquire nformation in ıe field of parasites to he required level	Helminthes/nematodes /*Ascaris*/*Ancylostoma*	PPT slides, smart board	written exams, daily written, oral exams, quizzes
8	2	tudents acquire nformation in ıe field of parasites to he required level	Helminthes/cestodes/ *Taenia*/*Echinococcus*	PPT slides, smart board	written exams, daily written, oral exams, quizzes
9	2	tudents acquire nformation in ıe field of parasites to he required level	Helminthes/trematodes /*Fasciola/Schistosoma*	PPT slides, smart board	written exams, daily written, oral exams, quizzes

11. Course evaluation	
Distributing the score out of 100 , 40 degree (20 theory + 20practical), the final exam 60 degree	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Medical Microbiology, tweentyeightedition E .Jawetz, J.L. Melnick, E.A. Adel 2019 Medical Virology Thrirteen edition By Phillip Rose 2012 Animal Agents and Vectors of Human Diseases. 5th Ed. P.C. Beaver **&** R.C. Jung. 1985
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Website	

Course Description Form

1. Course Name:

Arabic language

2. Course Code:

503 04 2 18

3. Semester / Year:

2nd stage / 2nd course

4. Description Preparation Date:

2/2025

5. Available Attendance Forms:

Attendanc and electronic

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

2/2

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

Name: Dr. Rana Alaa Badri

Email: ranaalaa@uomustansiriyah.edu.iq

Name: Assistant Lecturer.Doaa Kazem Ali

Email: duaa.k.ali@uomustansiriyah.ed.ig

8. Course Objectives

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

Strategy	• Presentation and Diction • Interactive discussions • Research and investigation • Brainstorming

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Identify the concept of languag the nature of its composition, a what distinguishes the Arabic language from other languages	The concept of language, its nature, and the features of the Arabic language	Lectures and discussions Power point	tests, And preparing reports
2	2	Recognizing the concept of the following terms: speech, saying, word, and knowing the parts of the word (noun, verb, and letter).	Meaning of "speech, saying, word (noun, verb, letter)	Lectures and discussions Power point	tests, And preparing reports
3	2	Identifying the additional letters in verbs and their effect in changing the	Meanings of increase in verbs	Lectures and discussions Power point	tests, And preparing reports

		meaning.			
4	2	Attribution of verbs to Pronouns.	Attribution of verbs pronouns	Lectures and discussions Power point	tests, And preparing reports
5	2	The concept of literature, its origins, elements and divisions	The concept of literature and divisions		
6	2	Familiarity with the rules of number.	Numbers	Lectures and discussions Power point	tests, And preparing reports
7	First midterm exam				
8	2	Knowing the rules of writing hamza	Ways of Writing hamza	Lectures and discussions Power point	tests, And preparing reports
9	2	Knowing the concept of Muʻallaqāt in pre-Islamic literature.	Pre-Islamic literature Muʻallaqāt	Lectures and discussions Power point	tests, And preparing reports
10	2	Knowing the concept of contradictions in Islamic literature.	Islamic literature / Contradictions	Lectures and discussions Power point	tests, And preparing reports
11	2	Knowing the meanings of prepositions and their impact on sentence formation.	Prepositions and their significance	Lectures and discussions Power point	tests, And preparing reports
12	2	Knowing the significance of punctuation marks and their position in text	Punctuations	Lectures and discussions Power point	tests, And preparing reports
13	2	Identify the correct words in use.	Language Corrections	Lectures and discussions Power point	tests, And preparing reports
14	2	Identify the positions of estimated Declension (***ʾIʿrāb).***	Verbal Declension and Estimated Declension	Lectures and discussions Power point	tests, And preparing reports
15	examination				

11. Course Evaluation

First mid-semester exam (25) marks
Daily discussions and tests (5 marks).
End-of-semester exam (70) score

12. Learning and Teaching Resources

Required textbooks (curricular books, 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 books and references (scientific journals, reports...)	Lexicons and dictionaries
Electronic References, Websites	-

Course Description Form

1. Course Name:
Pharmaceutical Technology I
2. Course Code:
50303302
3. **Semester / Year**:
1st semester/ 3rd year
4. **Description Preparation Date**:
2-2025
5. Available Attendance Forms:
Attendance
6. **Number of Credit Hours (Total) / Number of Units (Total)**
3 hours theoretical and 2 hours practical
7. Course administrator's name (mention all, if more than one name)
Name: Assist prof Iman Sabah Jaafar Email: pharm.eman.aldahan@uomustansiriyah.edu.iq Name: Assis prof Methaq Hammad Sabar Email: Methaqhamad@uomustansiriyah.edu.iq Lamyaa Gh. Fejer Email :Lamyaagh@uomustansiriyah.edu.iq Assist Lecturer Mustafa Mohammed Noori Email: Mustafa.mohamed@uomustansiriyah.edu.iq

8. Course Objectives	
Course Objectives	Teach theoretical bases for the technology of preparing different dosage forms with respect to their raw material, compositions, methods of preparation, stability, storage and uses At the end of the course, students are expected to learn: 1-Be able to differentiates between different types of dispersion systems: molecular, colloidal and coarse 2- Enable the student to prepare the solutions in simple methods 3. Be able to perform the calculations required to prepare pharmaceutical dosage forms. 4- Be able differentiate between pharmaceutical dosage forms. 5- Be able to select the most appropriate method and additives for preparation of pharmaceutical dosage forms. 6- Be able to select the most appropriate dosage form for active ingredients

9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	- Dispersion systems: their classification; comparisons: molecular, colloidal and coarse dispersion	Introduction dispersed system	Lecture/ theory	Oral discussio

		-Solutions and types of solutions: Definition of pharmaceutical solution, dosage form and differentiation between their types			
2	3	Differentiation between the solubility of pharmaceutical ingredients and factors affecting their solubility	Solubility concept	Lecture/ theory	Oral discussio
3	3	Preparation of solutions containing non-volatile materials -Identification and classification of Official solutions; preparation and us	Method preparation solution Classification solutions	Lecture/ theory	Oral discussio
4	3	-Introduction of aqueous solutions and aromatic solutions, method of preparation of aromatic solutions, stability study of aromatic solutions	Aromatic solution	Lecture/ theory	Oral discussio
	3	Preparation of sugar-based syrups, stability study of aqueous sucrose solutions,	Syrup dosage form		Oral discussio
5	3	formulation of artificial and sorbitol-based syrups; - applications of syrups	Nonnutritive syrup	Lecture/ theory	Oral discussio
6-7		Midterm			
8	3	-Clarification: definition and methods - Specific procedures and equipments which may be us to achieve clarification	Clarification	Lecture/ theory	Oral discussio
9	3	- preparation of solutions using mixed solvent systems: spirit and elixir -Identification the constituents of spirit dosage form and its methods of preparation - Identification the constitue of elixir dosage form and its methods of preparation	Mixed solvent syst	Lecture/ theory	Oral discussio
10	3	Extraction; maceration and percolation - methods of maceration and maceration	Extracted products	Lecture/ theory	Oral discussio
11	3	-Tincture	Extracted products	Lecture/	Oral discussio

		- Identification the constituents of tinctures dosage form and its methods of preparation. -Identification the constituents of fluid extract dosage form and its methods of preparation -extract of resins and oleoresins.		theory	
12	3	Colloidal dispersion - Types of colloidal dispersions: lyophilic; lyophobic	Colloidal dispersio	Lecture/ theory	Oral discussio
13	3	-coarse dispersions - Suspensions: Formulation suspensions, physical properties of dispersed particles.	Coarse dispersion	Lecture/ theory	Oral discussio
14	3	- Flocculating agents, types flocculating agents, physical stability of suspensions.	Suspension	Lecture/ theory	Oral discussio
15	3	Flocculating agents, types flocculating agents, physi stability of suspensions	Suspension	Lecture/ theory	Oral discussio
Final exam					

11. Course Evaluation	
Mid term Exam and Quizzes	20 marks
Final Exam	60 marks

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Ansel's Pharmaceutical dosage forms and d delivery systems 9th edition by Howard C. An Sinko. Wolters Kluwer, Lippincott Willia &Wilkins. Philadelphia. 2011
Main references (sources)	Lewis W. Dittert, "American pharmacy", Lippincott. company, 1974.
Recommended books and references (scientific journals, reports...)	1. Aulton's Pharmaceutics: The design and Manufacture of Medicines, Third Edition, Michael E. Aulton (Author) Churchill, Livevingstone-Elsevier 2. British Pharmacopeia BP United stated Pharmacopeia USP
Electronic References, Websites	Library references

Course Description Form

1. Course Name:

Inorganic pharmaceutical chemistry

2. Course Code:

503 02 301

3. Semester / Year:

1st semester/ 3rd year

4. Description Preparation Date:

March 2025

5. Available Attendance Forms:

Attendance

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

45/4

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

Assistant Prof. Ali Rasool Al-Bakaa	pharm.alirasool@uomustansiriyah.edu.iq
Lecturer Dr Shahla Zuhair	shahlaazuhair@uomustansiriyah.edu.iq
Assist. Prof Mohammed Abdullah Ahmed	mohammed1986ah@uomustansiriyah.edu.iq
Lecturer. Luma Amer Musa	lumaamer@uomustansiriyah.edu.iq
Assist. Lecturer Ruaa Ali Muftin	ruaaali@uomustansiriyah.edu.iq
Assist. Lecturer Hinda Ali Mahmood	hinda1993@uomustansiriyah.edu.iq

8. Course Objectives

Course Objectives	1. Predict the biological response, if any from the chemical structure. 2. Know the chemistry of different groups of the studied drugs. 3. Relate between the chemical structure and biological activity of the drugs. 4. Know some drug classes including preparation, identity and assay procedures. Demonstrate how to avoid undesirable side effects of the studied drugs.

9. Teaching and Learning Strategies

Strategy	Lectures / lab experiments Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz and discussion	lectures	Atomic and molecular structure/complications	Atomic constituent/ molecular structure and coordination compound formation	2hrs / theory	1
Quiz and discussion	lectures	Atomic and molecular structure/complications	Atomic constituent/ molecular structure and coordination compound formation	2hrs / theory	2
Quiz and discussion	lectures	Atomic and molecular structure/complications	Atomic constituent/ molecular structure and coordination compound formation	2hrs / theory	3
Quiz and	lectures	Essential and trace ions:	Cite of absorption how	2hrs / theory	4

discussion		Iron, copper, sulfur and iodine	the body affected by the alteration in their normal level		
Quiz and discussion	lectures	Essential and trace ions: Iron, copper, sulfur and iodine	Cite of absorption how the body affected by the alteration in their normal level	1hrs / theory	5
		Gastrointestinal agents: Acidifying agents	Illustrate how decrease acidity can cause serious conditions and how they could be treated with acidifying agents	1hrs / theory	
Quiz and discussion	lectures	Nonessential ions: Fluoride, bromide, lithium, gold, silver and mercury	Illustrate the effect of alteration of these ions on the body and the treatment of their toxicity	2hrs / theory	6
Quiz and discussion	lectures	Topical agents	Classification of topical agents and differences between ointments and cream	2hrs / theory	7
Mid- examination					8-9
Quiz and discussion	lectures	Dental agents	Understanding the role of dental agents, classification and their therapeutic applications	1hrs / theory	10
		Protective adsorbents	Types and examples of protective adsorbents, pharmaceutical and therapeutic applications	1hrs / theory	
Quiz and discussion	lectures	Antacids	Types, uses and side effects of antacids and the advantages of their combination to eliminate side effects	2hrs / theory	11
Quiz and discussion	lectures	Radiopharmaceutical preparations	Understanding radiopharmaceuticals, their classification and	2hrs / theory	12

			the principle of their preparation		
Quiz and discussion	lectures	Radiopharmaceutical preparations	Understanding radiopharmaceuticals, their classification and the principle of their preparation	2hrs / theory	13
Quiz and discussion	lectures	Radio opaque and contrast media	Understanding radio opaque media, mechanism, properties and their clinical pharmaceutical application	2hrs / theory	14
Quiz and discussion	lectures	Radio opaque and contrast media	Understanding radio opaque media, mechanism, properties and their clinical pharmaceutical application	2hrs / theory	15

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Books : Inorganic Medicinal and Pharmaceutical .Chemistry by block, Roche Soine and Wilson Latest addition
Main references (sources)	2- Refrences: - Inorganic Medicinal and Pharmaceutical .Chemistry by block, Roche Soine and Wilson .Latest addition
Recommended books and references (scientific journals, reports...)	Inorganic Medicinal and Pharmaceutical . .Chemistry by block, Roche Soine and Wilson Latest addition
Electronic References, Websites	3- internet websites: Google for searching practical inorganic pharmaceutical chemistry

Course Description Form

1. Course Name:
Pharmacognosy II
2. Course Code:
50306305
3. Semester / Year:
3rd stage / 1st course
4. **Description Preparation Date**:
4/2/2025
5. **Available Attendance Forms**:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2hrs. Theoretical, 2hrs. practical. (4) hrs / 6unit 4unit
7. Course administrator's name (mention all, if more than one name)

Theoretical Lect.	Email;
Lec. Dr. amani amer tawfeeq	Dr.amanitawfeeq@uomustansiriyah.edu.iq
Asst Lect. Wasan Mohammed	wasanmohammed@uomustansiriyah.edu.iq
practical lect	
Asst.lec.Tahani amir tawfeeq	Tahaniamir @uomustansiriyah .edu.iq
Asst. Lec. Zahraa abd alelah	zahraa-abd -alelah @uomstansiriyah.edu.iq
Asst. Lec. Duaa abass	duaa19882013@uomustansiriyah.edu.iq
Asst. Lec. Lubna amer	lubna.amer@uomustansiriyah.edu.iq
Asst. Lec. Fatima Riyadh	fatima.riyadh@uomustansiriyah.edu.iq
Asst. Lec. Hadeel Essam Hassan	hadeelessam@uomustansiriyah.edu.iq
Asst. Lec. Khadija fahim muhsin	
Asst. Lec. Isaac Khalil Ibrahim	
Zena Alaa	
Shawq talib	

8. Course Objectives	
Course Objectives	The aims include A- Chemical study of medical materials in the plant, such as pseudo alkaloids and flavonoids B-Students recognize the importance of the plant material in the medical as well as materials and food.
9. Teaching and Learning Strategies	
Strategy	1- Presentation and delivery 2- Interactive discussions 3- Brainstorming 4- Research and induction 5- Field visits to institutions and entities related to the pharmacist's work 6- Volunteer work, seminars and workshops

10. Course Structure of Pharmacognocy II / Theoretical/ 3rd stage / 1st course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2hrs. Theoretical	Definition and using	Carbohydrates and natural products	Theoretical lectures	Estimation way
2+3	4hrs. Theoretical	Definition and using	Lignans and coumarins	Theoretical lectures	Oral exams and discussion

4	2hrs. Theoretical	Definition and using	Flavonoids	Theoretical lectures	Oral exams and discussion
5+6+7	6hrs. Theoretical	Definition and using	Glycosides	Theoretical lectures	Oral exams and discussion
8	2hrs. Theoretical	Definition and using	Tannins	Theoretical lectures	Oral exams and discussion
9	2hrs. Theoretical	Definition and using	Lipids	Theoretical lectures	Oral exams and discussion
10	2hrs. Theoretical	Definition and using	Terpenoids	Theoretical lectures	Oral exams and discussion
11+12	4hrs. Theoretical	Definition and using	Volatile oils	Theoretical lectures	Oral exams and discussion
13	2hrs. Theoretical	Definition and using	Plants containing volatile oils	Theoretical lectures	Oral exams and discussion
14	2hrs. Theoretical	Definition and using	Resins and resin combination	Theoretical lectures	Oral exams and discussion
15	2hrs. Theoretical	Definition	Non medicinal toxic plants	Theoretical lectures	Oral exams and discussion

11. Course Structure of Pharmacognocy II practical / 3rd stage / 1st course

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1.	2hrs.	Required learning outputs	Isolation of podophyllotoxin from Podophyllum plant by preparative TLC	Practical	Oral and written exams, seminars and discussion.
2.	2hrs.	Technique and use	Review and general talk about glycosides	Practical	Oral and written exams, seminars and discussion
3.	2hrs.	Technique and use	Extraction of cardiac glycosides	Practical	Oral and written exams, seminars and discussion
4.	2hrs.	Technique and use	Identification of cardiac glycosides	Practical	Oral and written exams, seminars and discussion.
5.	2hrs.	Technique and use	Extraction of Anthra-quinone glycosides	Practical	Oral and written exams, seminars and discussion
6.	2hrs.	Technique and use	Identification of anthra-quinone glycosides	Practical	Oral and written exams, seminars and discussion
7.	2hrs.	Technique and use	Extraction of saponine glycosides	Practical	Oral and written exams, seminars and discussion
8.	2hrs.	Technique and use	Identification of saponine glycosides	Practical	Oral and written exams, seminars and discussion

9.	2hrs.	Technique and use	Tannins extraction and identification	Practical	Oral and written exams, seminars and discussion
10.	2hrs.	Technique and use	Separation of volatile oils	Practical	Oral and written exams, seminars and discussion

12 . Course evaluation

First Exam 15 marks Practical 20 marks
Activity 5 marks Final Exam 60 marks

13.Learning and Teaching Resources

Textbooks	A-Pharmacognosy and Pharmacobiotechnology by Tyler, 1996. (For theoretical) B-Practical manual, college of pharmacy / Baghdad University. (For practical)
References	
Recommended literatures	Fundamentals of pharmacognosy and phytotherapy.
Internet websites and electronic references	Google for searching about medicinal plants

Course Description Form

1. **Course Name**:
Pathophysiology
2. Course Code:
50304303
3. **Semester / Year**:
1st semester/ 3rd year
4. Description Preparation Date:
2-2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
5 hours per week / 3 Units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Dalya Basil Hanna Email: pharm.dr.dalya@uomustansiriyah.edu.iq Name: Lect. Dr. Noor Al-Mustafa Imad Email: almustafa@uomustansiriyah.edu.iq Name: Asst. Lect. Shaimaa Imad Shukur Email: shaimaaimad.shukur@uomustansiriyah.edu.iq Name: Asst. Lect. Safa Abdul Naser Fadhil Email: safa94@uomustansiriyah.edu.iq Name: Shahad Falah Abass Hasan Email: shahad.falah@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	-Students completing this course will understand: -Students will understand the basic of Pathology, categorize diseases according to body system, and correlate between clinical presentation with the pathophysiologic changes and the expected outcomes

9. Teaching and Learning Strategies	
Strategy	1- Lectures in class 2- Class discussions 3- Library workshop on using library resources for research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Introduction to general Pathology	Introduction	Theory and Practical lectures	Daily oral
2	5	Cell response to injury	Response to injury	Theory and Practical lectures	Daily oral & Quizzes
3	5	Tissue repair	Tissue repair	Theory and Practical lectures	Daily oral & Quizzes
4	5	Acute inflammation	Inflammation	Theory and Practical lectures	Daily oral & Quizzes
5	5	Chronic inflammation	Inflammation	Theory and Practical lectures	Daily oral & Quizzes

6	5	Mid-Term exam			
7	5	Circulatory disorders	Circulatory disorders	Theory and Practical lectures	Daily oral & Quizzes
8	5	Pathophysiology of main diseases of cardiovascular system	Cardiovascular system	Theory and Practical lectures	Daily oral & Quizzes
9	5	Pathophysiology of main diseases of respiratory system	Respiratory system	Theory and Practical lectures	Daily oral & Quizzes
10	5	Pathophysiology of main diseases of the renal system	Renal system	Theory and Practical lectures	Daily oral & Quizzes
11	5	Pathophysiology of main diseases of the GIT system	GIT system	Theory and Practical lectures	Daily oral & Quizzes
12	5	Pathophysiology of main diseases of the biliary system	Biliary system	Theory and Practical lectures	Daily oral & Quizzes
13	5	Types of anemia	Anemia	Theory and Practical lectures	Daily oral & Quizzes
14	5	Primary blood cancer	5 units	Theory and Practical lectures	Daily oral & Quizzes
15	Final exam				

11. Course Evaluation

The total grading is 100%, divided as follows:

1. Mid-Term exam (15%)
2. Preparation of reports, and daily oral (5%)
3. Practical exam (20%)
4. Final exam (60%)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Essential in Pathophysiology by: Carol Mattson Porth 2nd Ed. 2011, Volume 1and Volume 2
Main references (sources)	Pathophysiology Conale.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Biochemistry 1
2. Course Code:
50304304
3. Semester / Year:
1st semester/ 3ed stage
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Formal Time
6. Number of Credit Hours (Total) / Number of Units (Total):
15 weeks during the season 3 hr. theortical+2 hr. practical
7. Course administrator's name (mention all, if more than one name)
prof. dr. Israa Burhan israaburhan@uomustansiriyah.edu.iq Assist Prof: Basma Talib Assist.lec.Hayder Hussein hayderph@uomustansiriyah.edu.iq Assist.lec Marwa Sabah Younis Assist.lec. Huda Raad hudaraad.1988@uomustansiriyah.edu.iq

8. Course Objectives

Course Objectives	Helping to understand the principles of biochemistry Providing a solid foundation for a successful chemistry future

9. Teaching and Learning Strategies

Strategy	- Presentation and Discussion - Examinations and Report Writing

10. Course Structure : theoretical

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Student acquire information in the field of biochemistry to reach the required level	Introduction	The use of scientific references and use the smart board	Discussion Quizzes Home works
2	3		Carbohydrates		
3	3		Lipids		
4	Mid exam				
5	3	Student acquire information in the field of biochemistry to reach the required level	Amino acid	The use of scientific references and use the smart board	Discussion Quizzes Home works
6	3		peptides		
7	3		Proteins		
8	3		Enzyme		
9	3		Enzyme Kinetics		
10	3		Nucleic Acid		
11	3		Cell membrane		
12	3		Nutrition		
13	3		Endocrine system		
14	Final exam				

Structure, practical

Week	Hours	Required Learning Outcome	Unit or subject name	Learning method
1	1	Effect of acid on carbohydrate	PPT slides, smart board	Reports Quizzes

				Home works
2	1	Determination of unknown carbohydrate	PPT slides, smart board	Reports Quizzes Home works
3	1	Tests based on properties of carbohydrate	PPT slides, smart board	Reports Quizzes Home works
4	1	Determination of unknown carbohydrate	PPT slides, smart board	Reports Quizzes Home works
5	1	Color reaction of lipids	PPT slides, smart board	Reports Quizzes Home works
6	1	Determination of unknown lipids	PPT slides, smart board	Reports Quizzes Home works
7	1	Mid. Exam	PPT slides, smart board	Reports Quizzes Home works
8	1	Proteins	PPT slides, smart board	Reports Quizzes Home works
9	1	Color reaction of amino acids	PPT slides, smart board	Reports Quizzes Home works
10	1	Determination of unknown amino acids	PPT slides, smart board	Reports Quizzes Home works
11	1	Hydrolyze starch by amylase in saliva	PPT slides, smart board	Reports Quizzes Home works
12	1	Determination of unknown	PPT slides, smart board	Reports Quizzes Home works
13	1	Final exam	PPT slides, smart board	Reports Quizzes Home works

11. Course Evaluation	
Mid Exam: 20 marks Practical marks: 20 marks Final Exam: 60 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Illustrated biochemistry Harper 2018
Main references (sources)	-
Recommended books and references (scientific journals, reports...)	Illustrated biochemistry Harper 2015
Electronic References, Websites	-

Course Description Form

1. **Course Name**:	
Pharmacology I	
2. Course Code:	
50301306	
3. **Semester / Year**:	
3rd stage /2nd course	
4. **Description Preparation Date**:	
4/2/2025	
5. **Available Attendance Forms**:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 theoretical hours (3 units)	
7. Course administrator's name (mention all, if more than one name)	
1. Yassir Mustafa Kamal Email: yassir.almullahummadi@uomustansiriyah.edu.iq 2. Ruaa Abbas Naser 3. Zakariya Abd- al Karim Mahdi	
8. Course Objectives	
Course Objectives	• 1. Defining and understanding the subject of pharmacology. • 2. Study of drug kinetics and mechanism of action • 3. An introduction to the nervous system and the medications that affect it, and identifying the groups of antibiotics and antifungal and antiparasitic medications.
9. Teaching and Learning Strategies	
Strategy	1- Show educational videos 2- Seminar 3- Using means of illustration such as models, pictures, and diagrams 4- Preparing scientific reports by students

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Second semester					
1	12	Pharmacokinetics	Knowledge of basic pharmacodynamics and clinical pharmacokinetics necessary for safe and effective prescription	smart board	oral questions and written exams
2	12	Drug–Receptor Interactions and Pharmacodynamics	Identify harmful drug interactions	smart board	oral questions and written exams
3	12	The Autonomic Nervous System	Understanding the physiology of neurotransmitters	smart board smart board	oral questions and written exams
4	12	Cholinergic Agonists	Parasympathetic nervous system	smart board	oral questions

			medications		and written exams
5	12	Cholinergic antagonist	Parasympathetic nervous system antagonist drugs	smart board	oral questions and written exams
6	12	Adrenergic Agonists	Sympathetic nervous system medications	smart board	oral questions and written exams
7	12	Adrenergic Antagonists	Antisympathetic nervous system medications	smart board	oral questions and written exams
8	12	Principles of Antimicrobial Therapy	Understand the medications used to prevent and treat microbial infections	smart board	oral questions and written exams
9	12	Cell Wall Inhibitors	Identify inhibitors of cell wall synthesis	smart board	oral questions and written exams
10	12	Protein Synthesis Inhibitors	Identify protein synthesis inhibitors	smart board	oral questions and written exams
11	18	Quinolones, Folic Acid Antagonists, and Urinary Tract Antiseptics	Identify Quinolones, Folic Acid Antagonists and Urinary Tract Antiseptics	smart boa	oral questions and written exams
12	18	Antimycobacterial Drugs	Identify the treatment mechanism for mycobacteria tuberculosis	smart boa	oral questions and written exams
13	18	Antifungal Drugs	Identify the medications used to treat fungal infectio	smart board	oral questions and written exams
14	18	Antiprotozoal Drugs	Identify antiprotozoal agents used to treat protozoal infections	smart board	oral questions and written exams
15	18	Anthelmintic Drugs	Identify the medicatio that kill the various parasitic worms to whi humans are exposed	smart board	oral questions and written exams

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lippincott® Illustrated Reviews: Pharmacology Eighth Edition 2023

Main references (sources)	Lippincott® Illustrated Reviews
Recommended books and references (scientific journals, reports...)	Essentials Resources related to pharmacology field from the Internet or other recent books
Electronic References, Websites	1- Youtube.com 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:
Medical ethics
2. Course Code:
50305310
3. Semester / Year:
2nd course/3rd stage
4. **Description Preparation Date**:
6/2/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
1 hr
7. Course administrator's name (mention all, if more than one name)
Lec. Delen Abdul-Wahab
8. Course Objectives

Course Objectives	1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them
9. Teaching and Learning Strategies	
Strategy	Quizzes, mid and final exam

10. Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Introduction to pharmacy ethics (theoretical considerations	Introduction to pharmacy ethics (theoretical considerations	Whiteboard, data show	Theoretical exam, class discussions
2.	1	Code of Ethics for Pharmacy	Code of Ethics for Pharmacy	Whiteboard, data show	Theoretical exam, class discussions
3	3	Common ethical considerations in the application of pharmaceutical care	Common ethical considerations in the application of pharmaceutical care	Whiteboard, data show	Theoretical exam, class discussions
4	2	Relationships between	Relationships between medical	Whiteboard, data show	Theoretical exam, class discussions

		medical professionals	professionals		
5	1	Ethical decision-making	Ethical decision-making	Whiteboard, data show	Theoretical exam, class discussions
6	1	Ethical issues related to clinical pharmacy research	Ethical issues related to clinical pharmacy research	Whiteboard, data show	Theoretical exam, class discussions
7	1	Ethical problems in the clinical application of the pharmacist	Ethical problems in the clinical application of the pharmacist	Whiteboard, data show	Theoretical exam, class discussions
8	1	Prevent misuse of medication	Prevent misuse of medication	Whiteboard, data show	Theoretical exam, class discussions
9	3	Case studies in pharmacy ethics	Case studies in pharmacy ethics	Whiteboard, data show	Theoretical exam, class discussions

11. Course Evaluation	
Mid term 30 degree final score 70 degree	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1. Ruth Rodgers, (ed.); fast track: Law and Ethics in Pharmacy Practice. Pharmaceutical Press, latest edition.. 2. Joy Wingfield and David Badcott . Pharmacy Ethics and Decision Making. Pharmaceutical Press, latest edition..
Main references (sources)	
Recommended books and references (scientific journals, reports...)	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. latest edition.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Organic pharmaceutical chemistry I	
2. Course Code:	
503 02 307	
3. Semester / Year:	
2nd semester/ 3rd year	
4. Description Preparation Date:	
2-2025	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45/4	
7. Course administrator's name (mention all, if more than one name)	
Dr.Mohammed Dhia Hamdi	amiedy78@uomustansiriyah.edu.iq
Dr. Noor Waleed Ibrahim	noorwaleed@uomustansiriyah.edu.iq
Dr. Mayada Hadi	pharm.dr.mayada@uomustansiriyah.edu.iq
Dr. Shahla Zuhair	shahlaazuhair@uomustansiriyah.edu.iq
Lecturer: Luma Amer Musa.	lumaamer@uomustansiriyah.edu.iq
Assist. Lect. Ruaa Ali Muftin	ruaaali@uomustansiriyah.edu.iq
Assist Lect. Hinda Ali Mahmood	hinda1993@uomustansiriyah.edu.iq
8. Course Objectives	
Course Objectives	1.QSAR models'. spectroscopy; Analytical applications for pharmaceutical. 2.Drug-receptor interaction and applications for pharmaceutical. 3.General pathways of drug metabolism
9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz	Lectures	Drug distribution.		3 h	1
Quiz	Lectures	Acid- base properties.		3h	2
Quiz	Lectures	QSAR models.		3h	3
Quiz	Lectures	Steric features of drugs.		3h	4
Quiz	Lectures	Optical isomerism and biological activity and Calculated conformation		3h	5
Quiz	Lectures	Three- dimensional quantitative structure activity relationships and databases and isosterism		3h	6
Quiz	Lectures	Drug-receptor interaction and subsequent events.		3h	7

Quiz	Lectures	General pathways of drug metabolism: Sites of drug		3h	8
Quiz	Lectures	General pathways of drug metabolism: Sites of drug		3h	9
Quiz	Lectures			3h	10
Quiz	Lectures	biotransformation; Role of cytochrome P450 mono-oxygenases in oxidative biotransformation;		3h	11
Quiz	Lectures	Oxidative reactions;		3h	12
Quiz	Lectures	Reductive reactions;		3h	13
Quiz	Lectures	Hydrolytic reactions; Phase II reaction		3h	14

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition.
Main references (sources)	Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA
Recommended books and references (scientific journals, reports...)	Foye's Principles of Medicinal Chemistry by David A. Williams and Thomas L.Lemke. Delgado , JN, remers WA, (Eds);10thed, 2011
Electronic References, Websites	3- internet websites: Google for searching practical pharmaceutical chemistry

Course Description Form

1. Course Name:
Biochemistry 2
2. Course Code:
50304309
3. Semester / Year:
semester
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Formal Time
6. Number of Credit Hours (Total) / Number of Units (Total):
15 weeks during the season
7. Course administrator's name (mention all, if more than one name)
Name: prof. dr. Israa Burhan israaburhan@uomustansiriyah.edu.iq Assist prof :Basma Talib Assist prof. dr. Huda Jaber Assist.lec.Hayder Hussein hayderph@uomustansiriyah.edu.iq Assist. lec Marwa Sabah Younis Assist. lec Huda Raad hudaraad.1988@uomustansiriyah.edu.iq Assist. Lec Nab Nabil
8. Course Objectives
Course Objectives: Helping to understand the principles of biochemistry Providing a solid foundation for a successful chemistry future
9. Teaching and Learning Strategies
Strategy: - Presentation and Discussion - Examinations and Report Writing
10. Course Structure, theoretical

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Student acquire information in the field of biochemistry to reach the requi level	Bioenergetics, biological oxidation, respiratory chain, oxidative phosphorylation	The use of scientific references and use the smart board	Discussion Quizzes Home works
2	3		Over view of metabolism protein, lipid and carbohydrate		
3	3		Glycolysis		
4	3		Citric acid cycle		
5	3		Metabolism of glycogen		
6	3		Gluconeogenesis & pentose phosphate pathway		
7	Mid Exams				
8	3	Student acquire information in the field of biochemistry to reach the required level	Biosynthesis of fatty acids	The use of scientific references and use the smart board	Discussion Quizzes Home works
9	3		Oxidation of fatty acids		
10	3		Porphyrins and bile		

			pigments		
11	3		Biosynthesis of nutritionally non-essential amino acids		
12	3		Catabolism of proteins, ami acid nitrogen, carbon skelet and production of specialize products		
13	Final exam				

Structure, practical

Week	Hours	Required Learning Outcom	Unit or subject na	Learning method
1	1	spectrophotometer and micropipette	PPT slides, smart board	Reports Quizzes Home works
2	1	blood urea	PPT slides, smart board	Reports Quizzes Home works
3	1	calcium	PPT slides, smart board	Reports Quizzes Home works
4	1	unknown	PPT slides, smart board	Reports Quizzes Home works
5	1	Mid Exams	PPT slides, smart board	Reports Quizzes Home works
6	1	uric acid	PPT slides, smart board	Reports Quizzes Home works
7	1	vitamin C	PPT slides, smart board	Reports Quizzes Home works
8	1	total protein	PPT slides, smart board	Reports Quizzes Home works
9	1	unknown	PPT slides, smart board	Reports Quizzes Home works
10	1	general urine examination	PPT slides, smart board	Reports Quizzes Home works
11	1	spectrophotometer and micropipette	PPT slides, smart board	Reports Quizzes Home works
12	Final exam			

11. Course Evaluation

Mid Exam: 20 marks
Practical marks: 20 marks
Final Exam: 60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Illustrated biochemistry Harper 2018
Main references (sources)	-
Recommended books and references (scientific journals, reports...)	Illustrated biochemistry Harper 2015
Electronic References, Websites	-

Course Description Form

1. **Course Name**:
Pharmaceutical Technology II
2. Course Code:
50303308
3. Semester / Year:
2nd semester/ 3rd year
4. Description Preparation Date:
2-2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours theoretical and 2 hours practical
7. Course administrator's name (mention all, if more than one name)
Name: Assist prof Iman Sabah Jaafar Email: pharm.eman.aldahan@uomustansiriyah.edu.iq Name: Assist prof Methaq Hamad Sabar Email: Methaqhamad@uomustansiriyah.edu.iq Lecturer Zeina Dawood Salman Email pharm.zeina.alwasity@uomustansiriyah.edu.iq Assist Lecturer Mustafa Mohammed Noori Email: Mustafa.mohamed@uomustansiriyah.edu.iq Zahraa Mustafa Hussein Zhraa.m.alzubidi@ uomustansiriyah.edu.i
8. Course Objectives

Course Objectives	Teach theoretical bases for the technology of preparing different dosage forms concerning their raw material, compositions, methods of preparation, stability, storage, and uses At the end of the course, students are expected to learn: 1. To gain information about emulsions as liquid dosage forms; the purpose of emulsification; methods of emulsification; and emulsifying agents. 2. Understanding the importance of the HLB system in the preparation of emulsions and how emulsifying agents are classified based on this system. 3. To be able how to prepare stable emulsions and what factors that affect the stability of emulsions. 4. To gain information about other liquid dosage forms: lotions; liniments and collodions. 5. To gain information about semisolid dosage forms: Ointments, creams, and pastes and methods of their preparation. 6. To gain information about molded dosage form "suppositories" and methods of preparation 7. To gain information about solid dosage forms including powders, granules and capsules and how to prepare powders, and capsules and how to dispense them 8. To gain information about problems associated with the preparation and dispensing solid dosage forms. 9. To gain information about different types of incompatibility that occur during the preparation of different types of dosage forms and how to correct these incompatibilities

9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

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

			name		
1	3	Types of emulsion and terminology, classification, advantages and disadvantages.	Emulsions	Lecture/ theory	Oral discussio
2	3	Emulsifying agents, calculations, preparation method, stability	Emulsions	Lecture/ theory	Oral discussio
3	3	Definition, types, advantages, route c administration, and site of drug delive factors affecting drug absorption	Suppositor	Lecture/ theory	Oral discussio
4	3	Shapes and examples, bases, method preparation	Suppositor	Lecture/ theory	Oral discussio
	3	Determination of suppository base, vaginal insert, packaging, and storage	Suppositor		Oral discussio
6-7	Midterm				
8	3	Definition, advantages of capsule, types, hard gelatin capsules, manufacturing of hard gelatin shell.	Capsule	Lecture/ theory	Oral discussio
9	3	Preparation of filled hard gelatin capsule,soft gelatin capsule, entric coa capsule, and storage.	Capsule	Lecture/ theory	Oral discussio
10	3	Definition, ideal properties of ointment base, type of ointment base,	Semisolids	Lecture/ theory	Oral discussio
11	3	Selection of ideal ointment base, compandial requirement of ointment ophthalmic ointment, creams, pastes a gels	Semisolids	Lecture/ theory	Oral discussio
12	3	Medicated powders, route of administration, dispensing powders a granules	Powders	Lecture/ theory	Oral discussio
13	3	Advantages, preparation, effervescent granules, characterization of powders a granules ,flowability, particle size reduction	Granules	Lecture/ theory	Oral discussio
14	3	Definition, advantages, components,foams definition, advantag types	Aerosols a Foames	Lecture/ theory	Oral discussio
15	3	Types, physical, and chemical incompatibility.	Physicoche cal incompatib y	Lecture/ theory	
Final exam					

11. Course Evaluation	
Midterm Exam and Quizzes 20 marks Final Exam 60 marks	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Ansel's Pharmaceutical dosage forms and drug delivery systems 9th edition by Howard C. Ansel. Sinko. Wolters Kluwer, Lippincott Williams &Wilkins. Philadelphia. 2011
Main references (sources)	
Recommended books and references (scientific journals, reports...)	1. Aulton's Pharmaceutics: The design and Manufacture of Medicines, Third Edition, Michael E. Aulton (Author) Churchill, Livevingstone-Elsevier
Electronic References, Websites	Library references

Course Description Form

1. Course Name:
Pharmacognosy III
2. **Course Code**:
50306311
3. Semester / Year:
3rd stage /2nd course
4. Description Preparation Date:
4/2/2025
5. **Available Attendance Forms**:
Attendance
6. **Number of Credit Hours (Total) / Number of Units (Total)**
2hrs. Theoretical, 2hrs. practical. (4) hrs / 6unit 4unit
7. Course administrator's name (mention all, if more than one name)
Lec. Dr. amani amer tawfeeq Dr.amanitawfeeq@uomustansiriyah.edu.iq Asst. Lec. Zahraa abd alelah zahraa-abd -alelah @uomstansiriyah.edu.iq practical lect Asst. Lec. Nawrs Khairy norskherr457@uomustansiriyah.edu.iq Asst. Lec. Fatima Riyadh fatima.riyadh@uomustansiriyah.edu.iq Asst. Lec. Hadeel Essam Hassan hadeelessam@uomustansiriyah.edu.iq Asst. Lec. Isaac Khalil Ibrahim .lec.Tahani amir tawfeeq Tahaniamir @uomustansiriyah .edu.iq
8. Course Objectives
Course Objectives The aims include A- Chemical study of medical materials in the plant, such as pseudo alkaloids and flavonoids B-Students recognize the importance of the plant material in the medical as well as materials and food.
9. Teaching and Learning Strategies
Strategy Presentation and delivery 2- Interactive discussions 3- Brainstorming 4- Research and induction 5- Field visits to institutions and entities related to the pharmacist's work 6- Volunteer work, seminars and workshops

10. Course Structure of Pharmacognosy III / Theoretical/ 3rd stage / 2nd course

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-9	18hrs. Theoretical	Definition and using	Alkaloids	Theoretical lectures	Estimation way
10+12+13	6hrs. Theoretical	Definition and using	Antibiotics	Theoretical lectures	Oral exams and discussion
14	2hrs. Theoretical	Definition and using	Proteins and amino acids	Theoretical lectures	Oral exams and discussion
15+16	4hrs. Theoretical	Definition and using	Phyto therapy	Theoretical lectures	Oral exams and discussion

Course Structure of Pharmacognocy III practical / 3rd stage / 2nd course

Week	Hours	Required	Unit or subject	Learning	Evaluation method

		Learning Outcomes	name	method	
1.	2hrs.	Technique and use	Introduction of alkaloids	Practical	Oral and written exams, seminars and discussion.
2.	2hrs.	Technique and use	Extraction of Piperine from Black Pepper	Practical	Oral and written exams, seminars and discussion
3.	2hrs.	Technique and use	Identification of Piperine	Practical	Oral and written exams, seminars and discussion
4.	2hrs.	Technique and use	Extraction of Belladona alkaloids	Practical	Oral and written exams, seminars and discussion.
5.	2hrs.	Technique and use	Identification of Belladona alkaloids	Practical	Oral and written exams, seminars and discussion
6.	2hrs.	Technique and use	Extraction of Caffeine from Tea	Practical	Oral and written exams, seminars and discussion
7.	2hrs.	Technique and use	Identification of Caffeine Crystals	Practical	Oral and written exams, seminars and discussion
8.	2hrs.	Technique and use	Introduction of alkaloids	Practical	Oral and written exams, seminars and discussion
9.	2hrs.	Technique and use	Extraction of Piperine from Black Pepper	Practical	Oral and written exams, seminars and discussion

11. Course evaluation

First Exam 15 marks Practical 20 marks
Activity 5 marks Final Exam 60 marks

12. Learning and Teaching Resources

Textbooks	A-Pharmacognosy and Pharmacobiotechnology by Tyler, 1996. (For theoretical) B-Practical manual, college of pharmacy / Baghdad University. (For practical)
References	
Recommended literatures	Fundamentals of pharmacognosy and phytotherapy.
Internet websites and electronic references	Google for searching about medicinal plants

Course Description Form

1. **Course Name**:
Biopharmaceutics
2. Course Code:
50303403
3. Semester / Year:
First semester/4th year
4. Description Preparation Date:
2-2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hours theoretical only + 2 hours practicle
7. Course administrator's name (mention all, if more than one name)
1-Name: Dr. Masar Basim Mohsin Mohamed Email: masarmohamed@uomustansiriyah.edu.iq 2- Lecturer Suea Zuhair. Pharm.sura.alkazzaz@uomustansiriyah.edu.iq 3- **Name : Nora Zawar Yousif** **Email ; pharm.nora.zawar@uomustansiriyah** **Lecture Ebtihal abdulkadhim dakhil**
8. Course Objectives

Course Objectives	This **course** deals with the physical and chemical properties of drug substances, dosage form and the biological effectiveness of the drug or drug product upon administration (route of administration) , including drug availability in the human body from a given dosage form. The pharmacokinetic part of the coarse 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. Also, it concerns with the main processes of drug journey the absorption, distribution, metabolism and excretion.

9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to biopharmaceutics: Definition of biopharmaceutics, one and two-compartment models. -significance of measuring plasma	Introduction of biopharmaceutics	Lecture/ theory	Oral discussi

		drug concentration			
2	2	physiologic factors related to drug absorption -Fick's law of diffusion, Passive Diffusion -Carrier-mediated transport: Active Transport, Facilitated Diffusion. -Vesicular Transpo Pore Transport and ion-pair Formation	Physiological fact impact absorption	Lecture/ theory	Oral discussio
3	2	-Anatomic and Physiologic Considerations: Gastric Emptying Time, Intestinal motility, Perfusion of gastrointestinal tract	Effect of the human body on absorption	Lecture/ theory	Oral discussio
4	2	effect, Effect of food and drugs on gastrointestinal drug absorption. -formulation factor affecting drug dissolution	Effect of food on drug absorption	Lecture/ theory	Oral discussio
٥	Mid-term exam				
٦	2	-One–compartmen open model: intravenous bolus administration, elimination rate constant, apparent volume of distribution	Kinetic of one open model: intravenous infusion	Lecture/ theory	Oral discussio
٧	2	Multi-compartment models: Intravenous bolus administration. -Two-compartmen open model	Kinetics of 2 compartmental model	Lecture/ theory	Oral discussio
٨	2	Pharmacokinetic s of oral absorption: zero-order absorption and first order	Kinetics of absorption	Lecture/ theory	Oral discussio

		absorption model -Determination of absorption rate constant from oral absorption data			
٩	2	-Intravenous infusion: One compartment model drugs	Kinetics of intravenous infusion	Lecture/ theory	Oral discussic
١٠	2	-Multiple-Dose Regimens -Drug accumulation	Kinetic of multiple oral and intravenous doses	Lecture/ theory	Oral discussic
١١	2	Hepatic eliminatio	Kinetic of metabolism		
١٢	2	Bioavailability and Bioequivalence -Relative and Absolute bioavailability	The concept of bioavailability	Lecture/ theory	Oral discussic
13	2	Protein binding; kinetics of protein binding	Kinetic of protein bindi	Lecture/ theory	Oral discussic
14	2	Drug elimination clearance	Kinetic of clearance	Lecture/ theory	Oral discussic
15	2	Renal drug excreti	Kinetic of renal elimination	Lecture/ theory	Oral discussic
Final exam					

11. Course Evaluation

Mid term Exam	20 marks
practical	20 marks
Final Exam	60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Shargel L., Yu AB., (Eds). Applied Biopharmaceutics and Pharmacokinetics, Fifth edition, International Edition 2005.
second references (sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third Edition, Michael E. Aulton (Author) Churchill, Livingstone-Elsevier
Recommended books and references (scientific journals, reports...)	none
Electronic References, Websites	Library references

Course Description Form

1. Course Name:
Clinical pharmacy1
2. Course Code:
50305405
3. Semester / Year:
First semester/4th year
4. **Description Preparation Date**:
6/2/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
8 hr theory 16 hr practical
7. Course administrator's name (mention all, if more than one name)
Lec.dr Ola ali nassr(theory) Assist.lec.dr Abeer abd-alhadi rasheed(theory) Lec. Dr haider raheem mohammed(theory) Lab team: Prof. Manal Khalid Lec.dr .Ola ali nassr Lec.Sura abbas khdair Lec. Lubab tareq nafea Lec. Shaymaa hasan abbas Lec.dr. Deleen abdal Wahab Lec. Zahraa abd alghani Assist. Lec. Noor wafaa hashim
8. Course Objectives

Course Objectives	1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9. Teaching and Learning Strategies

Strategy	Quizzes, small group discussion, osce exam, role- play simulation, mid and final exam

10. Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	An Introduction to Community Pharmacy	An Introduction to Community Pharmacy	Whiteboard, data show	Theoretical exam, class discussions
2	2	Respiratory problems	Respiratory problems	Whiteboard, data show	Theoretical exam, class discussions
3	2	GIT problems	GIT problems	Whiteboard, data show	Theoretical exam, class discussions
4	2	Childcare practice	Childcare practice	Whiteboard, data show	Theoretical exam, class discussions
5	2	Skin diseases	Skin diseases	Whiteboard, data show	Theoretical exam, class discussions
6	2	Women's health	Women's health	Whiteboard, data show	Theoretical exam, class discussions
7	2	CNS problems	CNS problems	Whiteboard, data show	Theoretical exam, class discussions
8	2	Eye problems	Eye problems	Whiteboard, data show	Theoretical exam, class discussions
9	2	ENT problem	ENT problem	Whiteboard, data show	Theoretical exam, class discussions
10	2	Oral health	Oral health	Whiteboard, data show	Theoretical exam, class discussions
11	2	Obesity	Obesity	Whiteboard, data show	Theoretical exam, class discussions
12	2	Pain and disorders of the musculoskeletal system	Pain and disorders of the musculoskeletal system	Whiteboard, data show	Theoretical exam, class discussions
13	2	Nicotine replacement therapy	Nicotine replacement therapy	Whiteboard, data show	Theoretical exam, class discussions
14	2	Nutritional supplements	Nutritional supplements	Whiteboard, data show	Theoretical exam, class discussions

11. Course Evaluation

Mid term 20 score theory 20 score practical final score 60 degree	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 6th edition. Lor waterfield, Community Pharmacy Hand Book, 5th edition
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Organic pharmaceutical chemistry II
2. Course Code:
503 02 402
3. Semester / Year:
st semester/ 4rd year
4. Description Preparation Date:
March 2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
45/4
7. Course administrator's name (mention all, if more than one name)
Assist. Prof. Karima Fadhil Ali karimafadhil@uomustansiriyah.edu.iq Lecturer. Dr. Noor Waleed Ibrahim noorwaleed@uomustansiriyah.edu.iq Assistant lecturer: Mohammed Hasan Mohammed mom.h.mom@uomustansiriyah.edu.iq Assistant lecturer: Hussein Ali Kareem lecturer: Dina Saleem E-Mail: dina.saleem@uomustansiriyah.edu.iq lecturer: Aseel Qasim Mohammed Hasan Assistant lecturer: Sahar Mohammed Shakir
8.

Course Objectives	• Predict the biological response, if any from the chemical structure.. • Know the chemistry of different groups of the studied drugs. • Relate between the chemical structure and biological activity of the drugs. • Know some drug classes including preparation, identity and assay procedures. Demonstrate how to avoid undesirable side effects of the studied drugs.
9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz	Lectures	Cholinergic receptors and their subtypes. Stereochemistry and structure activity relationships (SAR); products.	structure activity relationships and mechanism of action	3	1.
Quiz	Lectures	Cholinesterase inhibitors. Structure activity relationships (SAR). Solanaceous alkaloid and analogues, synthetic	structure activity relationships and mechanism of action	3	2.

		cholinergic blocking agents, products			
Quiz	Lectures	Ganglionic blocking agents (neuromuscular blocking agents.	structure activity relationships and mechanism of action	3	3.
Quiz	Lectures	Structure and Physicochemical Properties, Biosynthesis Storage, Release, Uptake, and Metabolism	structure activity relationships and mechanism of action	3	4.
Quiz	Lectures	α-Adrenergic Receptors, β-Adrenergic Receptors Drugs Affecting Catecholamine Biosynthesis	structure activity relationships and mechanism of action	3	5.
Quiz	Lectures	Drugs Affecting Catecholamine Storage and Release, Direct-Acting Sympathomimetic endogenous catecholamines (SAR(	structure activity relationships and mechanism of action	3	6.
Quiz	Lectures	α -adrenergic receptor agonists . B-adrenergic receptor agonists, and Indirect-Acting Sympathomimetics. α – blockers,	structure activity relationships and mechanism of action	3	7.
		Mid Examination		3	8.
quiz	Lectures	Nonselective α – blockers, Irreversible α-blockers, Selective α 1-blockers.β-blockers, nonselective β-blockers.	structure activity relationships and mechanism of action	3	9.
Quiz	Lectures	Structure–Activity Relationships Of NSAIDs, Mechanism of Action and NSAID-Induced Side Effects, enzymatic structure of Cyclooxygenases, classes of COX inhibitor,	structure activity relationships and mechanism of action	3	10.
Quiz	Lectures	SAR of morphine, meperidine, type molecules, methadone , type molecules, N-methyl- benzomorphans, antagonist type	structure activity relationships and mechanism of action	3	11.

		analgesics in benzomorphans			
Quiz	Lectures	Endogenous opioids, structure-activity relationships (SAR), Products and. Antitussive agents.	structure activity relationships and mechanism of action	3	12.
Quiz	Lectures	.CNS depressant; Benzodiazepines and related compounds. Analeptics, central sympathomimetic Agents, methyl xanthine. Barbiturates. Mechanism of action of Antipsychotics.	structure activity relationships and mechanism of action	3	13.
Quiz	Lectures	Anticonvulsants, Clinically important Anticonvulsants. Biological Activities of Mineralocorticoids and Glucocorticoids, Steroids Sex Hormones, progestins and androgens	structure activity relationships and mechanism of action	3	14.

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Books : Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry 12^{ve} ed. John M. Beale, Jr., John H Block.
Main references (sources)	-2- Refrences: An introduction to medicinal chemistry fifth edition Graham L. Patrick
Recommended books and references (scientific journals, reports...)	.Foye's Principles of Medicinal Chemistry by David A. Williams and Thomas L.Lemke
Electronic References, Websites	3- internet websites: Google for searching practical pharmaceutical chemistry

Course Description Form

1. Course Name:
Public Health and Pharmacy Practice
2. Course Code:
50304404
3. Semester / Year:
First semester/4th year
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hrs weekly/ 2 units
7. Course administrator's name (mention all, if more than one name)
Name: Asst. Prof. Dr. Suzan Yousif Email: dr.suzany@uomustansiriyah.edu.iq Name: Asst. Prof. Dr.Mayssaa Essam Email: pbiyssaaessam@uomustansiriyah.edu.iq Name: Assist. Prof. Dr. Kadhim Ali Kadhim Email: Pharm.drkaka75@uomustansiriyah.edu.iq Name: Lecturer. Dr. Hayder Rahem
8. Course Objectives
Course Objectives At the end of the course, students are expected to be able: 1- To understand the diseases according to body system. 2- To understand the causes of infectious disease. 3- To diagnose and control on the disease. 4- To understand the body defense against infection. 5- To obtain an insight in the various aspects of the pharmacy practice.
9. Teaching and Learning Strategies
Strategy — 1. Class discussions 2. Library workshop on using library resources for research 3. Using the scientific references
10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	1) -Introduction:the the Concerns of public health. -Introduction: historic background of pharma practice	1) -Introduction:the the Concerns of public health. -Introduction: historic background of pharmacy practi	The use of scientific references an use the board	Monthly written examinations and oral examinations
2	2	2) -Epidemiology and & Population/Screening. - Pharmacy practice ar	2) -Epidemiology a & Population/Scree	The use of scientific references an use the board	Monthly written examinations and oral examinations

		the health care system and II	ng. -Pharmacy pract and the health ca system I and II		
3	2	3) -Prevention & Control Disease - Health promotion in community pharmacy	3) -Prevention & Control of Disea - Health promot in community pharmacy	The use of scientific references an use the board	Monthly written examinations and oral examinations
4	2	4) -Health Insurance (Organization of Healt Services). -Pharmaceutical care planning I and II	4) -Health Insuranc (Organization of Health Services) -Pharmaceutical care planning I a II	The use of scientific references an use the board	Monthlywritten examinations and oral examinations
5	2	5) -Infection Acquired Through the Gastro-intestinal Tract. ----- Community pharmacy management	5) -Infection Acqui Through the Gastro-intestinal Tract. ----- Community pharmacy management	The use of scientific references an use the board	Monthly written examinations and oral examinations
6		Mid Exam.			
7	2	6) - Control of Infection Acquired Through the GIT. (5 -Hospital pharmacy service	6) - Control of Infection Acquir Through the GIT -Hospital pharma service	The use of scientific references an use the board	Monthly written examinations and oral examinations
8	2	7) -Infection Acquired Through the Mucous Membrane. -Bio-safety in pharmac practice I	7) -Infection Acqui Through the Mucous Membrane. -Bio-safety in pharmacy practi	The use of scientific references an use the board	Monthly written examinations and oral examinations
9	2	8) -Transmission of Air-borne Infections -Bio-safety in pharmac practice II	8) -Transmission o Air-borne Infections -Bio-safety in pharmacy practice II	The use of scientific references an use the board	Monthly written examinations and oral examinations
10	2	9) -Control of Air-borne Infections. - Formulary managem and regulatory affairs I	9) -Control of Air-borne Infections - Formulary management and	The use of scientific references an use the board	Monthly written examinations and oral examinations

			regulatory affairs		
11	2	10) -Non- Communicable Diseases. -Formulary manageme and regulatory affairs	10) -Non-Communicable Diseases. -Formulary management and regulatory affairs	The use of scientific references and use the board	Monthly written examinations and oral examinations
12	2	11) - Occupation: Health Disease, genetics & health (2 -Rational use of drugs and II	11) - Occupation: Health Disease, genetics & health (2 -Rational use of drugs I and II	The use of scientific references and use the board	Monthly written examinations and oral examinations
13	2	12) -Vaccination & Immunization.	12) - Vaccination & Immunization.	The use of scientific references and use the board	Monthly written examinations and oral examinations
14	Final Exam				

11. Course Evaluation
1.Quizzes (5 units) 2.Mid-Term Exam (25 units) 3.Final exam (70 units

12. Learning and Teaching Resources	
curricular books: - Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, (4th Ed), 2003 - Lecture Notes in pharmacy practice, lilian M Azzopardi, 2010, pharmaceutical press, london	
Oxford Textbook of Global Public Health, Roger Detes,Martin Gulliford,Quarrisha Abdool Karim,*et al*.	
Electronic References, Websites	

Course Description Form

1. Course Name:

Pharmacology II

2. Course Code:

50301401

3. Semester / Year:

First semester
Fourth stage

4. Description Preparation Date:

2-2025

5. Available Attendance Forms:

Official working hours

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

First course: 45 theoretical hours (3 units) + 30 practical hours (1 unit)

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

1- Asst. Prof. Dr. Yassir Mustafa kamal
yassir.almullahummadi@uomustansiriyah.edu.iq
2- Lec. Dr. Wrood Salim Dawood
pharm.wroodsalim@uomustansiriyah.edu.iq
3- Asst. Lec. Zakariya A. Mahdi
zakariya.mahdi@uomustansiriyah.edu.iq
4- Samara Yahia Kriady
5- Esraa Hammadi Fahad

8. Course Objectives

Course Objectiv	• Display concepts selected topics in pharmacology • Increase knowledge of the relationship between drugs and disease • Enabling students to get acquainted with the most important references and sources in pharmacy sciences • Study the different types of medicines used in treating different diseases • Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors • Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities. • Harmonization between theoretical trends and practical reality in the pharmaceutical sciences

9. Teaching and Learning Strategies

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

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester/Theoretical					
1	3	Familiarity with the CNS drugs	Introduction to the CNS drugs	Smart board, power point	Oral and written exams
2	3	Familiarity with	Antianxiety drugs	Smart board,	Oral and written

		Antianxiety drugs		power point	exams
3	3	Familiarity with Antidepressant drugs	Antidepressant drugs	Smart board, power point	Oral and written exams
4	3	Familiarity with Antischezophrenic drugs	Antischezophrenic drugs	Smart board, power point	Oral and written exams
5	3	Familiarity with Anesthetic drugs	Anesthetic drugs	Smart board, power point	Oral and written exams
6	3	Familiarity with Centrally acting analgesic drugs	Centrally acting analgesic drugs	Smart board, power point	Oral and written exams
7	3	Familiarity with Antiparkisons drugs	Antiparkisons drugs	Smart board, power point	Oral and written exams
8	3	Familiarity with Antiepileptic drugs	Antiepileptic drugs	Smart board, power point	Oral and written exams
9	Mid-term exam				
10	3	Familiarity with Anti-hypertensive drugs	Anti-hypertensive drugs	Smart board, power point	Oral and written exams
11	3	Familiarity with Drugs for heart failure	Drugs for heart failure	Smart board, power point	Oral and written exams
12	3	Familiarity with Antianginal drugs	Antianginal drugs	Smart board, power point	Oral and written Exams
13	3	Familiarity with Drugs for dyslipidaemia	Drugs for dyslipidaemia	Smart board, power point	Oral and written exams
14	3	Familiarity with Antidysrhythmic drugs	Antidysrhythmic drugs	Smart board, power point	Oral and written exams
15	3	Familiarity with drugs for coagulation disorder	Drugs for coagulation disorder	Smart board, power point	Oral and written exams
	Final exam				

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, reports, and written midterm and final exams.
Practical part 20 degrees + theory midterm 20 degrees + final exam 60 degrees

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Pharmacology; Lippincott Latest edition
Main references (sources)	Pharmacology; Katzung Latest edition
Recommended books and references (scientific journals, reports...)	Resources related to Pharmacology field from the Internet or other recent books
Electronic References, Websites	1- FDA.gov 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:
Clinical pharmacy 2
2. Course Code:
50305410
3. Semester / Year:
Second semester/4th year
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
8 hr theory, 16 hr practical
7. Course administrator's name (mention all, if more than one name)
Assist. Prof. Dr. Kadhim Ali Kadhim Pharm.drkaka75@uomustansiriyah.edu.iq Lec. Dr haider raheem mohammed Assist.lec.dr.Abeer abd-alhadi rasheed(theory) Lab team: Assist. Prof. Dr. Kadhim Ali Kadhim Lec.dr .Ola ali nassr Lec. Zahraa abd alghani Lec. Sura abbas khdair Assist .lec. Noor wafaa hashim Lec. Shaymaa hasan abbas Lec.dr .Deleen abdal wahab
8. Course Objectives

Course Objectives	1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9. Teaching and Learning Strategies	
Strategy	quizzes, small group discussion, osce exam, role- play simulation, mid and final
10. Course structure	

10.Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	1	Introduction	Introduction	Whiteboard, data show	Theoretical exam, class discussions
2.	1	Patient's care	Patient's care	Whiteboard, data show	Theoretical exam, class discussions

3	2	Hematological problems	Hematological problems	Whiteboard, data show	Theoretical exam, class discussions
4	2	Hypertension	Hypertension	Whiteboard, data show	Theoretical exam, class discussions
5	2	Angina	Angina	Whiteboard, data show	Theoretical exam, class discussions
6	2	Heart failure	Heart failure	Whiteboard, data show	Theoretical exam, class discussions
7	1	Peripheral vascular disease	Peripheral vascular disease	Whiteboard, data show	Theoretical exam, class discussions
8	2	Asthma	Asthma	Whiteboard, data show	Theoretical exam, class discussions
9	1	Respiratory disease	Respiratory disease	Whiteboard, data show	Theoretical exam, class discussions
10	2	DM	DM	Whiteboard, data show	Theoretical exam, class discussions
11	2	Peptic ulcer	Peptic ulcer	Whiteboard, data show	Theoretical exam, class discussions
12	1	Tuberculosis	Tuberculosis	Whiteboard, data show	Theoretical exam, class discussions
13	1	Meningitis	Meningitis	Whiteboard, data show	Theoretical exam, class discussions
14	2	Respiratory infection	Respiratory infection	Whiteboard, data show	Theoretical exam, class discussions
15	1	GIT infection	GIT infection	Whiteboard, data show	Theoretical exam, class discussions
16	2	Rheumatoid arithritis	Rheumatoid arithritis	Whiteboard, data show	Theoretical exam, class discussions
17	1	Osteoporosis	Osteoporosis	Whiteboard, data show	Theoretical exam, class discussions
18	1	Endocarditis	Endocarditis	Whiteboard, data show	Theoretical exam, class discussions
19	1	Preoperative antibiotics	Preoperative antibiotics	Whiteboard, data show	Theoretical exam, class discussions
20	1	UTI	UTI	Whiteboard, data show	Theoretical exam, class discussions

11. Course Evaluation

quizzes, small group discussion, osce exam, role- play simulation, mid and final

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Behrouz Barbara G.Wells & Joseph T. Dipiro,Pharmacotherapy handbook, latest edition. British National Formulary (BNF) current edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Mary Ann, Text book of Applied therapeutics, latest edition

Course Description Form

1. Course Name:	
Organic pharmaceutical chemistry III	
2. Course Code:	
503 02 408	
3. Semester / Year:	
Second semester/4th year	
4. Description Preparation Date:	
March 2025	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45/4	
7. Course administrator's name (mention all, if more than one name)	
Assist Prof. Karima Fadhil Ali	karimafadhil@ uomustansiriyah.edu.iq
Dr.Mohammed Dhia Hamdi	amiedy78@uomustansiriyah.edu.iq
Assist Lect. Shahla Zuhair	shahlaazuhair@uomustansiriyah.edu.iq
Dr. Noor Waleed Ibrahim	noorwaleed@uomustansiriyah.edu.iq
Lect.: Dina Saleem	dina.saleem@uomustansiriyah.edu.iq
Assist. Lect.: Hussien Ali Kareem	
Assist. Lect.: Mohammed Hasan Mohammed	mom.h.mom@uomustansiriyah.edu.iq
Lect. Aseel Qasim Mohammed	
8.	
Course Objectives	• Predict the biological response, if any from the chemical structure.. • Know the chemistry of different groups of the studied drugs. • Relate between the chemical structure and biological activity of the drugs. • Know some drug classes including preparation, identity and assay procedures. Demonstrate how to avoid undesirable side effects of the studied drugs.
9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz	Lectures	B-lactam antibiotics. The penicillin's, Chemical Classification, β-lactam inhibitors. products.	structure activity relationships and mechanism of action	3	1.
Quiz	Lectures	Cephalosporins, Monobactams. Chemical classification, SAR. Mechanism of action,	structure activity relationships and mechanism of action	3	2.

		Microbial resistance and commercial production			
Quiz	Lectures	Amino glycosides & chloramphenicol. Chemical classification, SAR. Mechanism of action, Microbial resistance and Commercial production.	structure activity relationships and mechanism of action	3	3.
Quiz	Lectures	Tetracyclines; macrolides Chemical classification ,SAR Mechanism of action, Microbial resistance and Commercial production	structure activity relationships and mechanism of action	3	4.
Quiz	Lectures	Lincomycines & polypeptides. Chemical classification, SAR Mechanism of action, Microbial resistance and Commercial	structure activity relationships and mechanism of action	3	5.
Quiz	Lectures	Sulfonamides; products; ,sulfones. SAR Mechanism of action, Microbial resistance and commercial production(	structure activity relationships and mechanism of action	3	6.
Quiz	Lectures	Antiviral agents, The classification and biochemistry of viruses. Target for prevention of viral infection. Antiviral drugs: genera features, The major sites of antiviral drug action. Chemical structures of some antiviral nucleoside ,.and nucleotide analogs	structure activity relationships and mechanism of action	3	7.
Mid Examination					8.
quiz	Lectures	Anti fungal agents, Biochemical targets for antifungal chemotherapy. Classification of antifungal .drugs and SAR	structure activity relationships and mechanism of action	3	9.
Quiz	Lectures	Anti neoplastic agents; alkylating agents; Introduction, drug classes, Anti metabolites Introduction,	structure activity relationships and mechanism of	3	10.

		.drug classes	action		
Quiz	Lectures	Antibiotics; Plant products; miscellaneous compounds	structure activity relationships and mechanism of action	3	11.
Quiz	Lectures	Plant products: Vinca Alkaloids, Hormones and ..their antagonists	structure activity relationships and mechanism of action	3	12.
Quiz	Lectures	Future Anti neoplastic agents; Monoclonal ; antibodies; Gene therapy of cancer	structure activity relationships and mechanism of action	3	13.
Final Exams					14.

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Books :Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry 12^{ve} ed. John M. Beale, Jr., John H Block.
Main references (sources)	2- Refrences: An introduction to medicinal chemistry fifth edition Graham L. Patrick .
Recommended books and references (scientific journals, reports...)	Foye's Principles of Medicinal Chemistry by . David A. Williams and Thomas L.Lemke
Electronic References, Websites	3- internet websites: Google for searching practical pharmaceutical chemistry

Course Description Form

1. Course Name:	
General toxicology	
2. Course Code:	
50301407	
3. **Semester / Year**:	
Second semester/4th year	
4. **Description Preparation Date**:	
2-2025	
5. Available Attendance Forms:	
Official working hours	
6. **Number of Credit Hours (Total) / Number of Units (Total)**	
Second course: 2 hours per week (for 15 weeks during the semester	
7. Course administrator's name (mention all, if more than one name)	
1.Name: Qassim Hasson Ali 2.Name: Esraa Hammadi Fahad Email: esraa.ham@uomustansiriyah.edu.iq 3. Nada sahib Abd al shaker 4. Dina sabah mahdi 5.Hashim hasan hashim	
8. Course Objectives	
Course Objectives	• Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge • And learning in order to develop their specialized and general capabilities. - Harmonizing theoretical trends and practical reality in pharmaceutical sciences • - Enabling students to become familiar with scientific research tools and work on using them in the field • Academic and practical. • Keeping up with modern scientific developments in pharmaceutical sciences and working to employ them. - Preparing and qualifying students to pursue postgraduate studies by developing their intellectual skills • Scientific and research.....
9. Teaching and Learning Strategies	
Strategy	Enabling students to acquire and understand general toxicology Enabling students to become familiar with the most important referen and sources in pharmaceutical sciences

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First semester/Theoretical					
1	2	Principles of toxicology	Introduction to to toxicology	smart board	oral questions and written exams
2	2	Mechanical occurrence Poisoning	Introduction to toxicology	smart board	oral questions and written exams
3	2	Toxic response of liver	Toxic response	smart board smart	oral

			liver	board	questions and written exams
4	2	Respiratory toxicology	Respiratory toxicology	smart board	oral questions and written exams
5	2	Renal toxicology	Toxic response of the system	smart board	oral questions and written exams
6	2	Blood toxicology	Toxic response of blood	smart board	Oral questions and written exams
7	2	Cardiovascular Toxicology	Toxic response of the system	smart board	oral questions and written exams
8	2	. Cardiovascular Toxicology	Toxic response of the system	smart board	oral questions and written exams
9	2	Central nervous system toxicology	Toxic response of the system	smart board	oral questions and written exams
10		Skin toxicology	Toxic response of skin		
11	2	Nutrient toxicology	Toxic response of the system	smart board	oral questions and written exams
12	2	Metal toxicology	Toxicity of metals	smart board	oral questions and written exams
13	2	Radiation toxicology	Toxic response to radiation	smart board	oral questions and written exams
14	2	Environmental toxicology	Environment toxicity	smart board	oral questions and written exams
15	2	Environmental toxicology	Environment toxicity	smart board	oral questions and written exams
second Semester/ Practical					
1	2	General introduction to practical toxicology	Smart board	smart board	oral questions and written exams

2	4	Acute toxicity study, determination of LD50	Animal experime Smart board	smart board	oral questions and written exams
3	4	Drug toxicity on liver	smart board	smart board	oral questions and written exams
4	4	Nicotine toxicity	smart board	smart board	oral questions and written exams
5	4	Pesticide toxicity	smart board	smart board	oral questions and written exams
6	4	Metal toxicity	smart board	smart board	oral questions and written exams
7	4	Blood toxicity	smart board	smart board	oral questions and written exams
8	4	Drug induce toxicity	smart board	smart board	oral questions and written exams

11. Course Evaluation

Mid term Exam 20 marks
practical 20 marks
Final Exam 60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Textbooks: Gossel TA, Bricker TD, (EDS.); Principles clinical toxicology; lasts edition Viccellio P, (ED.); Handbook of medical toxicology; l edition
Main references (sources)	Essentials of Textbooks: Gossel TA, Bricker TD, (EDS.); Principles of clinical toxicology; lasts edition Casarett and Doull, Toxicology, the Basic Science of Poisons; latest edition.
Recommended books and references (scientific journals, reports...)	Resources related to general toxicology field from Internet or other recent books
Electronic References, Websites	1- Youtube.com 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:
Industrial pharmacy I
2. Course Code:
50303409
3. Semester / Year:
Second semester/4th year
4. **Description Preparation Date**:
2-2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hours theoretical only + 2 hours practicle
7. Course administrator's name (mention all, if more than one name)
1- Dr. Masar Basim Mohsin Mohamed : masarmohamed@uomustansiriyah.edu.iq 2- Dr. Athmar Daher athmar1978@uomustansiriyah.edu.iq 3-Lec. Ashti Mohameed phashtilevo@uomustansiriyah.edu.iq 4- Assist lect. *Mayssam Hussein* Mayssam.hussain@uomustansiriyah.edu.iq 5- Assist Lect. Muna Yehia munayehia@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	The subjective aim of this course is to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. This fundamental course provides 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

Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introduction to mixing and theory of mixing Mechanism of fluid mixing and segregation Fluid mixing equipment	Mixing	Lecture/ theory	Oral discussio
2	3	Solid – solid Mixing Mechanism of solid mixing Solid mixing equipment Solid –liquid	Mixing	Lecture/ theory	Oral discussio

		mixing			
3	3	Milling theory Size measurement	Milling	Lecture/ theory	Oral discussion
4	3	Milling equipment Advantages and drewbacks	Milling	Lecture/ theory	Oral discussion
5	Mid-term exam				
6	3	Drying theory Moisture content measurements	Drying	Lecture/ theory	Oral discussion
7	3	Drying equipment Advantages and their drawbacks	Drying	Lecture/ theory	Oral discussion
8	3	Filtration theory Filter aid theory Filtration tests	Filtration	Lecture/ theory	Oral discussion
9	3	Filtration equipment Membrane filter	Filtration	Lecture/ theory	Oral discussion
10	3	Sterilization by filtration	Filtration	Lecture/ theory	Oral discussion
11	3	Sterilization theory Sterilization kinetic	Sterilization	Lecture/ theory	Oral discussion
12	3	Sterilization equipment	Sterilization	Lecture/ theory	Oral discussion
13	3	Sterilization methods	Sterilization	Lecture/ theory	Oral discussion
14	3	Sterile products Production of sterile products	Sterile products	Lecture/ theory	Oral discussio
15	3	Development of sterile products quality control of sterile products	Sterile products	Lecture/ theory	Oral discussio
Final exam					

11. Course Evaluation

Mid term Exam	20 marks
practical	20 marks
Final Exam	60 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. The Theory and practice of industrial pharmacy.", Leon Lachman, 2009
second references (sources)	1-Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third Edition, Michael E. Aulton (Author) Churchill, Livingstone-Elsevier 2-Ansel's Pharmaceutical dosage forms and drug delivery systems, tenth edition 2014.
Recommended books and references (scientific journals, reports...)	none
Electronic References, Websites	Library references

Course Description For

1. **Course Name**:					
Pharmacology III					
2. Course Code:					
50301406					
3. Semester / Year:					
Second semester Fourth stage					
4. Description Preparation Date:					
2/2025					
5. **Available Attendance Forms**:					
Official working hours					
6. **Number of Credit Hours (Total) / Number of Units (Total)**					
Second course: 30 theoretical hours (2 units)					
7. Course administrator's name (mention all, if more than one name)					
1- Prof. Dr. Bahir Abdul Razzaq Moshaimish dr.bahirrazzaq@uomustansiriyah.edu.iq 2- Lec. Dr. Wrood Salim Dawood pharm.wroodsalim@uomustansiriyah.edu.iq					
8. Course Objectives					
Course Objectives	• Display concepts selected topics in pharmacology • Increase knowledge of the relationship between drugs and disease • Enabling students to get acquainted with the most important references and sources in pharmacy sciences • Study the different types of medicines used in treating different diseases • Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors • Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities. • Harmonization between theoretical trends and practical reality in the pharmaceutical sciences				
9. Teaching and Learning Strategies					
Strategy	1. Emphasis on the necessity of learning and experience in the field of teaching. 2. Discuss teamwork. 3. Writing self-reports. 4. Use the strategy of cooperation and assistance during the education process. 5. Field visits to the relevant ministries and educational institutions. 6. Holding seminars, courses and workshops for students that encourage spiritual values. 7. Forming a discussion group during the lecture				
10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
First semester/Theoretical					
1	2	Familiarity with the pituitary gland medication	Pituitary gland drugs	Smart board, power point	Oral and written exams
2	2	Familiarity with	Antidiabetic	Smart board,	Oral and written

		theAntidiabetic drugs	drugs	power point	exams
3	2	Familiarity with theAdrenal gland	Adrenal gland	Smart board, power point	Oral and written exams
4	2	Familiarity with the Male and female hormones	Male and female hormones	Smart board, power point	Oral and written exams
5	2	Familiarity with the Drugs for obesity	Drugs for obesity	Smart board, power point	Oral and written exams
6	2	Familiarity with the Anticancer drugs	Anticancer drugs	Smart board, power point	Oral and written exams
7	2	Familiarity with theImmunosuppressive drugs	Immunosuppressive drugs	Smart board, power point	Oral and written exams
8	Mid-term exam				
9	2	Familiarity with theAnti-inflammatory	Anti-inflammatory	Smart board, power point	Oral and written exams
10	2	Familiarity with theDrugs for anaemia	Drugs for anaemia	Smart board, power point	Oral and written exams
11	2	Familiarity with the Drugs for osteoporosis	Drugs for osteoporosis	Smart board, power point	Oral and written Exams
12	2	Familiarity with theDrugs for dermatological disorder	Drugs for dermatological disorder	Smart board, power point	Oral and written exams
13	2	Familiarity with the Drugs for erectile dysfunction	Drugs for erectile dysfunction	Smart board, power point	Oral and written exams
14	2	Familiarity with the Antiasthma drugs	Antiasthma drugs	Smart board, power point	Oral and written exams
15	2	Familiarity with theDrugs for peptic ulcer disease	Drugs for peptic ulcer disease	Smart board, power point	Oral and written exams
	Final exam				

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, and written midterm and final exams.
Theory midterm 30 degrees + final exam 70 degrees

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Pharmacology; Lippincott Latest edition
Main references (sources)	Pharmacology; Katzung Latest edition
Recommended books and references (scientific journals, reports...)	Resources related to Pharmacology field from the Internet or other recent books
Electronic References, Websites	1- FDA.gov 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:
Communication skills
2. Course Code:
503 05 4 11
3. Semester / Year:
Second semester/4th year
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
٢hr
7. Course administrator's name (mention all, if more than one name)
Lec .Dr. Ola ali nassar Lec. Lubab tareq nafea
8. Course Objectives

Course Objectives	1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9. Teaching and Learning Strategies	
Strategy	Quizzes, mid and final exam

10. Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Patient-centered communication in pharmacy practice	Patient-centered communication in pharmacy practice	Whiteboard, data show	Theoretical exam, class discussions
2.	2	Principles and basics of interpersonal communication	Principles and basics of interpersonal communication	Whiteboard, data show	Theoretical exam, class discussions
3.	2	Nonverbal communication	Nonverbal communication	Whiteboard, data show	Theoretical exam, class discussions
4.	2	Barriers to communication	Barriers to communication	Whiteboard, data show	Theoretical exam, class discussions
5.	2	Listen and respond sympathetically	Listen and respond	Whiteboard, data show	Theoretical exam, class discussions

		during communication	sympathetically during communication		
6.	2	Determination	Determination	Whiteboard, data show	Theoretical exam, class discussions
7.	2	Interview and evaluation	Interview and evaluation	Whiteboard, data show	Theoretical exam, class discussions
8.	2	Helping patients to manage treatment regimens	Helping patients to manage treatment regimens	Whiteboard, data show	Theoretical exam, class discussions
9.	2	Patient consultation, counseling list, discussion point by point, counseling scenario	Patient consultation, counseling list, discussion point by point, counseling scenario	Whiteboard, data show	Theoretical exam, class discussions
10.	2	Medication safety and communication skills	Medication safety and communication skills	Whiteboard, data show	Theoretical exam, class discussions
11.	2	Strategies to meet special needs	Strategies to meet special needs	Whiteboard, data show	Theoretical exam, class discussions
12.	2	Communicate with children and the elderly about treatments	Communicate with children and the elderly about treatments	Whiteboard, data show	Theoretical exam, class discussions
13.	2	Communication and cooperation skills among medical professionals	Communication and cooperation skills among medical professionals	Whiteboard, data show	Theoretical exam, class discussions
14.	2	Electronic communication in health care	Electronic communication in health care	Whiteboard, data show	Theoretical exam, class discussions
15.	2	Ethical behavior when communicating with patients	Ethical behavior when communicating with patients	Whiteboard, data show	Theoretical exam, class discussions

11. Course Evaluation	
Mid term 30 degree final score 70 degree	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice, 5th edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Bruce A. Burger (ed.), Communication Skills for Pharmacists; American Pharmacists Association; 2nd ed.
Electronic References, Websites	

Course Description Form

1. Course Name:	
Industrial Pharmacy II	
2. Course Code:	
50303503	
3. Semester / Year:	
First semester/ 5th year	
4. Description Preparation Date:	
5/2/2025	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours Theoretical + 2 hours Practical	
7. Course administrator's name (mention all, if more than one name)	
Dr. Mohammed Hussain Neama	mohammedhussain@uomustansiriyah.edu.iq
Lecturer. Ali Khidher Abbas	pharm.alikdhir@uomustansiriyah.edu.iq
Lecturer Zeina Dawood	.zeina.alwasity@uomustansiriyah.edu.iq
Assist lect Mayssam Hussein Mohammed Ali	mayssam.hussein@ uomustansiriyah.edu.iq
Lecturer :Ashti M.H.Saeed	phashtilevo@ uomustansiriyah.edu.iq
8. Course Objectives	
Course Objectives	1. Explain the technical setup for coordination of standards for formulation of typical dosage forms. 2. Describe the principles needed for mass production of different pharmaceutical dosage forms. 3. Describe the evaluation tests for the different dosage forms.
9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	An introduction about tablets and their types	Tablets: Introduction	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
2	3	Tablets Manufacturing	Knowing the different methods used in the manufacturing of tablets.	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
3	3	Evaluation of Tablets	Knowing the different official and non-official tests for tablet evaluation.	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
4	3	Problems of Tabletting	Identification of problems associated with tablets manufacturing	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation

Mid term exam					
5	3	Tablets Coating	Knowing the reasons behind coating and the different methods used for coating	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
6	3	Quality Control of Tablets	Identification of tests used to evaluate the prepared tablets	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
7	3	Hard Gelatin Capsule	Definition of hard gelatin capsules and its manufacturing methods	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
8	3	Evaluation of Hard Gelatin Capsules	Identification of tests used to evaluate the hard gelatin capsules	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
9	3	Soft Gelatin Capsules	Definition of hard gelatin capsules and its manufacturing methods	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
10	3	Evaluation of Soft Gelatin Capsules	Identification of tests used to evaluate the soft gelatin capsules	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
11	3	Microencapsulation	Definition of microencapsulation and its types with manufacturing methods	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
12	3	Semisolids	Knowing the manufacturing methods and factors affecting their activity	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
13	3	Evaluation of Semisolids	Identification of tests use to evaluate semisolids	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
14	3	Aerosols	Knowing the manufacturing methods of aerosols	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
15	3	Evaluation of Aerosc	Identification of tests use to evaluate aerosols	Lecture/ theory+doing practical experiments	Oral discussion + experimental work evaluation
Final exam					

11. Course Evaluation

Mid-term Exam	15 marks
Quizzes and activities	5 marks
Practical	20 marks
Final Exam	60 marks

12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	"The Theory and practice of industrial pharmacy.", L Lachman, 2013
Main references (sources)	Aulton's Pharmaceutics: The Design and Manufacture Medicines, Third edition, Michael E. Aulton (Auth Churchill, Livingstone- Elsevier, 2014
Recommended books and references (scientific journals, reports...)	none
Electronic References, Websites	Library references

Course Description Form

1. Course Name:
Applied therapeutic1
2. Course Code:
50305506
3. Semester / Year:
First semester/ 5th year
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hr
7. Course administrator's name (mention all, if more than one name)
prof mohammed mahmood mohammed Lec. Dr. turath nabeel Ibrahim Lec.dr .Deleen abdal wahab
8. Course Objectives

Course Objectives	1- The course aims to identify the different pathological conditions, their definition, causes, methods of diagnosis, treatment methods and groups of drugs used in treatment 2 -To make the graduate student able to recognize the pathological conditions fixed in the patient's drum 3 -Making the graduate student able to communicate with patients in general disease outpatient clinics 4- Making the graduate student able to educate patients about the drugs used by them 5- Make the graduate student able to match wrong remedial methods with what is found in proven sources
9. Teaching and Learning Strategies	
Strategy	quizzes, , mid and final exam
10. Course structure	

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	Acute coronary atherosclerosis syndrome	Acute coronary atherosclerosis syndrome	Whiteboard, data show	Theoretical exam, class discussions
2	3	arrhythmia	Arrhythmia	Whiteboard, data show	Theoretical exam, class discussions
3	3	Blood clotting and stroke	Blood clotting and stroke	Whiteboard, data show	Theoretical exam, class discussions
4	3	Hypercholesrolemia	Hypercholesrolemia	Whiteboard, data show	Theoretical exam, class discussions
5	3	Shock	Shock	Whiteboard, data show	Theoretical exam, class discussions
6	3	CNS diseases	CNS diseases	Whiteboard,	Theoretical exam,

				data show	class discussions
7	3	Cirrhosis and viral hepatitis	Cirrhosis and viral hepatitis	Whiteboard, data show	Theoretical exam, class discussions
8	3	Increased intraocular pressure - nerve fibrosis	Increased intraocular pressure - nerve fibrosis	Whiteboard, data show	Theoretical exam, class discussions
9	3	Acute kidney failure	Acute kidney failure	Whiteboard, data show	Theoretical exam, class discussions
10	3	Chronic kidney deficiency and dialysis	Chronic kidney deficiency and dialysis	Whiteboard, data show	Theoretical exam, class discussions
11	3	TPN	TPN	Whiteboard, data show	Theoretical exam, class discussions
12	3	Urinary incontinence and Nocturnal urination	Urinary incontinence and Nocturnal urination	Whiteboard, data show	Theoretical exam, class discussions
13	3	Interpretation of laboratory results	Interpretation of laboratory results	Whiteboard, data show	Theoretical exam, class discussions
14	3	Fluids,minerals,and acid-base disturbances	Fluids,minerals,and acid-base disturbances	Whiteboard, data show	Theoretical exam, class discussions
15	3	Colitis-systemic lupus erythematosuslupus	Colitis-systemic lupus erythematosuslupus	Whiteboard, data show	Theoretical exam, class discussions

11. Course Evaluation	
mid 30 score and final 70 score	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1. Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics, latest edition. 2. Behrouz Barbara G.Wells & Joseph T. Dipiro, Pharmacotherapy hand book , latest edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	

Course Description Form

1. Course Name:
Organic Pharmaceutical Chemistry IV
2. Course Code:
503 02 5 02
3. Semester / Year:
First semester/ 5th year
4. Description Preparation Date:
March /2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical 30h / 2 Units
7. Course administrator's name (mention all, if more than one name)
Assist. Prof Dr. Basma M. Abd razik basma_m_razik@uomustansiriyah.edu.iq Dr Mohammed Dhia Al-Ameedee amiedy78@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	To give the student knowledge and experience in prodrug as part of their medicinal and pharmaceutical field . as well as combinatorial chemistry**.**
9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz	Lectures	Introduction in prodrug		2	1
Quiz	Lectures	Functional Groups in Prodrugs		2	2
Quiz	Lectures	Amines		2	3
Quiz	Lectures	BIOPRECURSOR PRODRUGS		2	4
Quiz	Lectures	CHEMICAL DELIVERY SYSTEMS		2	5
Quiz	Lectures	Polymeric prodrugs		2	6
Quiz	Lectures	polymeric prodrugs		2	7
Mid Exam					8
quiz	Lectures	Combinatorial Chemistry		2	9
Quiz	Lectures	Peptides and Peptoids		2	10
Quiz	Lectures	SUPPORTS AND LINKERS		2	11
Quiz	Lectures	soluble polymers		2	12
Quiz	Lectures	Detection , purification , analysis		2	13
Quiz	Lectures	Mass spectrometry		2	14

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Wilson and gisvold textbook of organic medicinal and pharmaceutical chemistry : Delgado , JN, remers WA, (Eds);10thed, 2004
Main references (sources)	Suggested references]
Recommended books and references (scientific journals, reports...)	P John McCurry;organic chemistry ;Thomason learningInc, ; CA,USA7thed 2011
Electronic References, Websites	

Course Description Form

1. Course Name:	
Clinical toxicology	
2. **Course Code**:	
503 01501	
3. Semester / Year:	
First semester / Fifth stage	
4. **Description Preparation Date**:	
2-2025	
5. Available Attendance Forms:	
Official working hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
First course: 30 theoretical hours (2 units) + 30 practical hours (1 unit)	
7. Course administrator's name (mention all, if more than one name)	
Dr. Lect. Kassim Hasoon Ali Lect. Ruaa Abbas Naser Asst. Lec. Zakariya A. Mahdi Assis. Lect. Esraa Hmmadi Fahad Samar Yahia kriadi	pharmasim@uomustansiriyah.edu.iq rua.alhamdy@uomustansiriyah.edu.iq zakariya.mahdi@uomustansiriyah.edu.iq esraa.ham@uomustansiriyah.edu.iq
8. Course Objectives	
Course Objectives	1- Enabling students to learn about some cases of poisoning 2- Enabling students to have skills to use scientific research tools in the academic and practical field 3- Enabling students to have dialogue and discussion skills 4- Enabling students to have self-learning skills
9. Teaching and Learning Strategies	
Strategy	1- Show educational videos 2- Seminar 3- Using means of illustration such as models, pictures, and diagrams 4- Preparing scientific reports by students
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	valuation method	
1	2	Introduction to toxicology	Initial evaluation and management of the poisoned patient.	Smart board Slides	Oral or written exam	
2	2	Poisoning in pediatrics & geriatrics	pediatric poisoning and special consideration in the geriatric patient	=	=	
3	2	Toxicity of OTC	Toxicity of caffeine; theophylline; antihistamine and decongestant	=	=	
4	2	Toxicity of OTC	Toxicity of non-steroidal anti- inflammatory drugs; vitamins.	=	=	
5	2	Medical	Toxicity of beta blocker;	=	=	

		prescriptions	ACE inhibitors		
6	2	Medical prescriptions	Toxicity of digoxin; calcium channel blocker;	=	=
7	2	Medical prescriptions	Toxicity of antiarrhythmic agents; hypoglycemic drugs	=	=
8	Mid-term Exam				
9	2	Medical prescriptions	Toxicity of Opiods	=	=
10	2	Medical prescriptions	Toxicity of tricyclic antidepressants	=	=
11	2	Medical prescriptions	Toxicity of anti-cholinergic phenothiazines		=
12	2	Medical prescriptions	Toxicity of CNS stimulants	=	=
13	2	Drugs of abuse	Toxicity of opoid; cocaine; phencyclidine; marijuana; lysergic acid.	=	=
14	2	Chemical and environmental toxins	Toxicity of household toxins; antiseptic; disinfectants; camphor.	=	=
15	2	Botanicals and plants- derived toxins	herbal preparation; toxic plants	=	=
Final Exam					
First Course/ Practical					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction to clinical toxicology	Explain the general considerations in the management of the poisoned patient.	Smart board Slides	Oral or written exam
2	2	Initial evaluation and management of the poisoned patient	Determine methods used to prevent or reduce absorption of toxicants.	=	=
3	2	Salicylate & acetaminophen toxicity	To determine clinical manifestation of salicylates toxicity and how to treat them.	=	=
4	2	Vitamins toxicity	To determine clinical manifestation of vitamins toxicity and how to treat them.	=	=
5	2	Opioid toxicity	To determine clinical manifestation of opioid toxicity and how to treat them.	=	=

6	2	Toxicity of digoxin	To determine clinical manifestation of digoxin toxicity and how to treat them.	=	=
7	2	Toxicity of β-blockers	To determine clinical manifestation of β-blockers toxicity and how to treat them.	=	=
8	Mid-term Exam				
9	2	Seminars	Discuss cases of poisoning	=	=
10	2	Seminars	Discuss cases of poisoning	=	=
11	2	Seminars	Discuss cases of poisoning		=
12	2	Seminars	Discuss cases of poisoning	=	=
13	2	Seminars	Discuss cases of poisoning	=	=
14	2	Seminars	Discuss cases of poisoning	=	=
15	2	Seminars	Discuss cases of poisoning	=	=

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Gossel TA, Bricker TD, (EDS.); Principles of clinical toxicology; 8th ed, 2015.
Main references (sources)	Essentials of Viccellio P, (ED.); Handbook of medical toxicology; lasts edition.
Recommended books and references (scientific journals, reports...)	Resources related to physiology field from the Internet or other recent books
Electronic References, Websites	1- Youtube.com 2- Researchgate.com 3- Googlescholar.com

Course Description Form

1. Course Name:
Clinical Biochemistry
2. Course Code:
50304505
3. Semester / Year:
First semester/ 5th year
4. **Description Preparation Date**:
5/2/2025
5. Available Attendance Forms:
Formal time
6. Number of Credit Hours (Total) / Number of Units (Total)
3 theory / 2 practical
7. Course administrator's name (mention all, if more than one name)
Prof.Dr. Wassan abdulkareem Email: wassanabdulkareem uomustansiriyah.edu.iq Dr. Mohammed Abdulridha Email: m.al_zubaidi@uomustansiriyah.edu.iq Assisst .Prof.Dr.Huda Jaber Dr.Aseel Ghassan Ass. Lect. Sara Salah Mahdi Ph.sarasalah@uomustansiriyah.edu.iq Assist. Lecturer Nabaa nabiel
8. Course Objectives

Course Objectives	• - Presenting the concepts of topics chosen in secret chemistry research • - Theoretical application to practical experiences and rules of measurements in clinical chemistry • - Explanation of knowledge and basic principles in clinical chemistry

9. Teaching and Learning Strategies	
Strategy	1- Delivery of ideas with regard to clinical chemistry 2- View lectures with drawings and photos 3- Using external sources

10. Course Structure / Theory

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Students gained information in the field of clinical chemistry live up to the required level	Carbohydrate metabolism disorders	Slides and smart board	Mid-term exam and quiz exam
2	3	Students gained information in the field of clinical chemistry live up to the required level	Liver function	Slides and smart board	Mid-term exam and quiz exam
3	3	Students gained information in the field of clinical chemistry live up to	Plasma lipid and lipoprotein metabolism disorders	Slides and smart board	Mid-term exam and quiz exam

		the required level			
4	3	Students gained information in the field of clinical chemistry live up to the required level	Diagnostic enzymology	Slides and smart board	Mid-term exam and quiz exam
5	3	Students gained information in the field of clinical chemistry live up to the required level	Endocrinology disorders	Slides and smart board	Mid-term exam and quiz exam
6	3	Students gained information in the field of clinical chemistry live up to the required level	Reproductive system	Slides and smart board	Mid-term exam and quiz exam
7	3	Students gained information in the field of clinical chemistry live up to the required level	Tumor markers	Slides and smart board	Mid-term exam and quiz exam
8	3	Students gained information in the field of clinical chemistry live up to the required level	Drug interaction with laboratory tests	Slides and smart board	Mid-term exam and quiz exam
9	3	Students gained information in the field of clinical chemistry live up to the required level	Disorders of calcium metabolism	Slides and smart board	Mid-term exam and quiz exam
10	3	Students gained information in the field of clinical chemistry live up to the required level	Acid base disorders	Slides and smart board	Mid-term exam and quiz exam
11	3	Students gained information in the field of clinical chemistry live up to the required level	Pituitary glands	Slides and smart board	Mid-term exam and quiz exam
12	3	Students gained information in the field of clinical chemistry live up to the required level	Adrenal gland	Slides and smart board	Mid-term exam and quiz exam
13	3	Students gained information in the field of clinical chemistry live up to the required level	Male disorders	Slides and smart board	Mid-term exam and quiz exam

14	3	Students gained information in the field of clinical chemistry live up to the required level	Female disorders	Slides and smart board	Mid-term exam and quiz exam
15	3	Students gained information in the field of clinical chemistry live up to the required level	Thyroid function	Slides and smart board	Mid-term exam and quiz exam

Course Structure / Practical					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of blood glucose	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
2	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of CK activity	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
3	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of serum bilirubin + phosphate	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
4	2	Students gained information in the field of clinical chemistry live up to the required level	Unknown exam	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
5	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of blood urea	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
6	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of serum creatinine	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
7	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of uric acid level in the blood	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
8	2	Students gained information in the	Unknown exam	The use of scientific	Practical and theoretical

		field of clinical chemistry live up to the required level		references and the use of smart blackboard	exams
9	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of serum cholesterol	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
10	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of serum HDL-cholesterol	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
11	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of serum triglycerides	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
12	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of serum LDL-cholesterol	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
13	2	Students gained information in the field of clinical chemistry live up to the required level	Unknown exam	The use of scientific references and the use of smart blackboard	Practical and theoretical exams
14	2	Students gained information in the field of clinical chemistry live up to the required level	Estimation of AST and ALT enzymes	The use of scientific references and the use of smart blackboard	Practical and theoretical exams

11. Course Evaluation

Distributing the degree from 100 according to the tasks assigned to the student so that the weekly exams and mid-term exam are from 40 and the final exam is from 60

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Clinical biochemistry and metabolic medicine . Marten A , 8th edition , 2012
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course description form

1. Course Name:	
Pharmacoeconomics	
2. Course Code:	
50305513	
3. Semester / Year:	
Second semester/ 5th year	
4. Description Preparation Date:	
6-2-2025	
5. Available Attendance Forms:	
Official working hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hr theory	
7. Course administrator's name (mention all, if more than one name)	
Assist .lec. Dr. Abber abd al-hadi rasheed Lec. Zahraa abd alghani	
8. Course Objectives	
Course Objectives	-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2- To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them.
9. Teaching and Learning Strategies	
Strategy	quizzes, , mid and final exam
10. Course structure	

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	1	Classroom overview and basic principles of pharmacoeconomics	Classroom overview and basic principles of pharmacoeconomics	Whiteboard, data show	Theoretical exam, class discussions
2.	2	Cost analysis	Cost analysis	Whiteboard, data show	Theoretical exam, class discussions
3	2	Cost effectiveness analysis	Cost effectiveness analysis	Whiteboard, data show	Theoretical exam, class discussions
4	2	Mid term exam	Mid term exam	Whiteboard, data show	Theoretical exam, class discussions
5	2	Cost benefit analysis	Cost benefit analysis	Whiteboard, data show	Theoretical exam, class discussions

6	2	Cost minimization analysis	Cost minimization analysis	Whiteboard, data show	Theoretical exam, class discussions
7	2	A critical appraisal of an economic estimate	A critical appraisal of an economic estimate	Whiteboard, data show	Theoretical exam, class discussions
8	Mid term exam 2				
9	2	Drug-based structure versus disease-dependent structure to arrive at a pharmacological economic analysis	Drug-based structure versus disease-dependent structure to arrive at a pharmacological economic analysis	Whiteboard, data show	Theoretical exam, class discussions
10	2	Introduction to Epidemiology	Introduction to Epidemiology	Whiteboard, data show	Theoretical exam, class discussions
11	2	Submit project	Submit project	Whiteboard, data show	Theoretical exam, class discussions
12	2	Submit project	Submit project	Whiteboard, data show	Theoretical exam, class discussions

11.Course Evaluation	
Mid term exam 30 score final exam 70 score	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Bootman JL, Townsend RJ, McGhan WF, (Eds.), Principles of Pharmacoeconomics, Harvey Whitney Books Company, Cincinnati, Oh, Latest edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course description form

1. Course Name:	
Applied therapeutic2	
2. Course Code:	
50305511	
3. Semester / Year:	
Second semester/ 5th year	
4. Description Preparation Date:	
6-2-2025	
5. Available Attendance Forms:	
Official working hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hr	
7. Course administrator's name (mention all, if more than one name)	
Prof. Manal Khalid prof mohammed mahmood mohammed Lec.dr .Ola ali nassr	
8. Course Objectives	
Course Objectives	1- The course aims to identify the different pathological conditions, their definition, causes, methods of diagnosis, treatment methods and groups of drugs used in treatment 2 -To make the graduate student able to recognize the pathological conditions fixed in the patient's drum 3 -Making the graduate student able to communicate with patients in general disease outpatient clinics 4- Making the graduate student able to educate patients about the drugs used by them 5- Make the graduate student able to match wrong remedial methods with what is found in proven sources
9. Teaching and Learning Strategies	
Strategy	quizzes, , mid and final exam
10. Course structure	

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	Thyroid disease	Thyroid disease	Whiteboard, data show	Theoretical exam, class discussions
2.	2	Gynecology and contraception	Gynecology and contraception	Whiteboard, data show	Theoretical exam, class discussions
3	2	Menstrual disorders and hormone replacement therapy	Menstrual disorders and hormone replacement therapy	Whiteboard, data show	Theoretical exam, class discussions
4	2	Introduction to cancer diseases	Introduction to cancer diseases	Whiteboard, data show	Theoretical exam, class discussions
5	2	Leukemia	Leukemia	Whiteboard,	Theoretical exam,

				data show	class discussions
6	2	Lymphoma	Lymphoma	Whiteboard, data show	Theoretical exam, class discussions
7	2	Breast cancer	Breast cancer	Whiteboard, data show	Theoretical exam, class discussions
8	2	Prostate Cancer	Prostate cancer	Whiteboard, data show	Theoretical exam, class discussions
9	2	Colon cancer	Colon cancer	Whiteboard, data show	Theoretical exam, class discussions
10	2	Adrenergic and pituitary diseases	Adrenergic and pituitary diseases	Whiteboard, data show	Theoretical exam, class discussions
11	2	Depression disease and schizophrenia	Depression disease and schizophrenia	Whiteboard, data show	Theoretical exam, class discussions
12	2	Fatigue and insomnia	Fatigue and insomnia	Whiteboard, data show	Theoretical exam, class discussions
13	2	Bipolar schizophrenia	Bipolar schizophrenia	Whiteboard, data show	Theoretical exam, class discussions
14	2	Alzheimer's disease	Alzheimer's disease	Whiteboard, data show	Theoretical exam, class discussions
15	2	Immunodeficiency diseases	Immunodeficiency diseases	Whiteboard, data show	Theoretical exam, class discussions

11.**Course Evaluation**	
Mid term exam 30 score final exam 70 score	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	1. Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics, latest edition. 2. Behrouz Barbara G.Wells & Joseph T. Dipiro, Pharmacotherapy hand book , latest edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Advanced Pharmaceutical Analysis
2. Course Code:
50302509
3. Semester / Year:
Second semester/ 5th year
4. Description Preparation Date:
March 2025
5. Available Attendance Forms:
Attendance + Online
6. Number of Credit Hours (Total) / Number of Units (Total)
Theoretical 45 h + Practical 30 h / 4 units
7. Course administrator's name (mention all, if more than one name)
Assist. Prof. Dr. Basma Munjid Abdulraziq Assist. Prof. Dr. Mohammed Abdullah Ahmed mohammed1986ah@uomustansiriyah.edu.iq Dr. Wathiq Al-Hachami, wathiq_al_hachami@uomustansiriyah.edu.iq Assist. Prof. Ali R. Albakaa pharm.alirasool@uomustansiriyah.edu.iq Dr. Hallah Hamid Hammadi dr.halahhammadi@uomustansiriyah.edu.iq Lect. Nehad K. abed Kanaan_nehad@uomustansiriyah.edu.iq Assist Lect. Sahar Mohammed Shakir

8. Course Objectives	
Course Objectives	Students learn the modern methods for the analysis and determination of active substances in the pharmaceutical substances (drugs) and the standardization and quality control of the pharmaceutical industry.

9. Teaching and Learning Strategies	
Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Quiz	Lectures	UV / visible spectroscopy; Sample handling and instrumentation; Characteristic absorption of organic compounds;		3	1
Quiz	Lectures	Rules for calculation of lambda max and application; Application of UV/visible; spectroscopy; Conjugated system.		3	2
Quiz	Lectures	Infra Red spectroscopy (theory and H-bonding effect		3	3
Quiz	Lectures	Sampling techniques and interpretation of spectra; Characteristic group frequencies of organic compounds.		3	4
Quiz	Lectures	Application of IR spectroscopy; Problems and solutions.		3	5
Quiz	Lectures	Introduction, the nature of NMR		3	6

		absorption, chemical shifts and factors affecting them.			
Quiz	Lectures	Introduction, the nature of NMR absorption, chemical shifts and factors affecting them.		3	7
Quiz	Lectures	Introduction, the nature of NMR absorption, chemical shifts and factors affecting them.		3	8
quiz	Lectures	Information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy		3	9
Quiz	Lectures	Information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy		3	10
Quiz	Lectures	C13-NMR spectroscopy: introduction and characteristics, DEPT C13- NMR spectroscopy.		3	11
Quiz	Lectures	Introduction and interpreting Mass spectra		3	12
Quiz	Lectures	Interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups.		3	13
Quiz	Lectures	Interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups.		3	14

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Modern Pharmaceutical Drug Analysis, by L. Zechmeister And L. Von Cholnoky, ISBN (13) : 978-81-224-2718-9 2.Pharmaceutical Analysis Edited by DAVID C. LEE GlaxoSmithKline Stevenage, UK and MICHAEL L. WEBB GlaxoSmithKline Stevenage, UK.
Main references (sources)	3.Silverstien
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Google for searching practical pharmaceutical chemistry

Course Description Form

1. Course Name:
TDM
2. Course Code:
50305512
3. Semester / Year:
Second semester/ 5th year
4. Description Preparation Date:
6/2/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
2 hr theory and 2 2 hr practical
7. Course administrator's name (mention all, if more than one name)
Lec. Dr. turath nabeel Ibrahim(theory) Lec. Dr hadeel delman najm(theory) Lab team: Lec. Dr. turath nabeel Ibrahim Lec. Dr haider raheem mohammed

8. Course Objectives	
Course Objective	1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2- To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them.
9. Teaching and Learning Strategies	
Strategy	quizzes, , mid and final exam

10. Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Introduction	Introduction	Whiteboard, data show	Theoretical exam, class discussions
2.	2	A review of pharmacokinetic basics	A review of pharmacokinetic basics	Whiteboard, data show	Theoretical exam, class discussions
3	2	A review of pharmacodynamics basics	A review of pharmacodynamics basics	Whiteboard, data show	Theoretical exam, class discussions
4	2	Review of clinical pharmacokinetic equations and calculations and	Review of clinical pharmacokinetic equations and calculations and	Whiteboard, data show	Theoretical exam, class discussions

		clinical pharmacodynamics	clinical pharmacodynamics		
5	2	Clinical pharmacokinetics and clinical pharmacodynamics in special patient types	Clinical pharmacokinetics and clinical pharmacodynamics in special patient types	Whiteboard, data show	Theoretical exam, class discussions
6	2	Clinical pharmacokinetics and clinical pharmacokinetics of antibiotics.	Clinical pharmacokinetics and clinical pharmacokinetics of antibiotics.	Whiteboard, data show	Theoretical exam, class discussions
7	Mid term exam				
8	2	Clinical pharmacokinetics and clinical pharmacokinetics of .cardiovascular drugs	Clinical pharmacokinetics and clinical pharmacokinetics of .cardiovascular drugs	Whiteboard, data show	Theoretical exam, class discussions
9	2	Clinical pharmacokinetics and clinical pharmacodynamics of antiepileptic drugs.	Clinical pharmacokinetics and clinical pharmacodynamics of antiepileptic drugs.	Whiteboard, data show	Theoretical exam, class discussions
10	2	Clinical pharmacokinetics and clinical pharmacokinetics of immunomodulators	Clinical pharmacokinetics and clinical pharmacokinetics of immunomodulators	Whiteboard, data show	Theoretical exam, class discussions
11	2	Clinical pharmacokinetics and clinical pharmacodynamics for different types of drugs.	Clinical pharmacokinetics and clinical pharmacodynamics for different types of drugs.	Whiteboard, data show	Theoretical exam, class discussions

11.**Course Evaluation**	
20 score mid term theory 20 score practical 60 score final exam	
12.**Learning and Teaching Resources**	
Required textbooks (curricular books, if any)	Applied Clinical Pharmacokinetics, Second Edition, latest edition by Larry A. Bauer.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:
Laboratory Training
2. Course Code:
503 04 5 04
3. Semester / Year:
Second semester/ 5th year
4. Description Preparation Date:
5/2/2025
5. Available Attendance Forms:
Formal time
6. Number of Credit Hours (Total) / Number of Units (Total)
3 Hours
7. Course administrator's name (mention all, if more than one name)
Name: Prof.Dr.Suhad faisal hatim Email: suhadhatim@uomustansiriyah.edu.iq Name: Assis.Prof,Dr..mohammed abdul ridah mohammed Email: m.al_zubaidi@uomustansiriyah.edu.iq Name: Aseel Ghassan Daoud Email: Ph.aseelbutti@uomustansiriyah.edu.iq Name: Lact. zainab Farooq Shafeeq Email: zainabshfeeq@uomustansiriyah.edu.iq Name:Sara Salah Mahdi Email Ph.sarasalah@uomustansiriyah.edu.iq
8. Course Objectives

Course Objectives	• Theoretical application is on practical experiences • Explaining the basic knowledge and principles of laboratory training subject

9. Teaching and Learning Strategies	
Strategy	1- Discussing teamwork in the hibernation. 2- Using scientific references

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Students who gained information in the field of lab training live up to the required level	Diagnostic test basics, collecting &transporting specimens, venipuncture, urine specimen, stool specimen.	The use of scientific references and use the board	Weekly written examinations
2	3	Students who gained information in the field of lab training live up to the required level	Biochemical tests: Fasting blood glucose, Postprandial glucose, Oral glucose tolerance test	The use of scientific references and use the board	Weekly written examinations
3	3	Students who gained information in the field of lab training	Blood urea, Blood creatinine, Creatinine clearance, Uric acid.	The use of scientific references	Weekly written examinations

		live up to the required level		and use the board	
4	3	Students who gained information in the field of lab training live up to the required level	Cholesterol, Lipoproteins, triglycerides	The use of scientific references and use the board	Weekly written examinations
5	3	Students who gained information in the field of lab training live up to the required level	Blood proteins, Bilirubin	The use of scientific references and use the board	Weekly written examinations
6	3	Students who gained information in the field of lab training live up to the required level	Calcium, Inorganic phosphate, Serum chloride	The use of scientific references and use the board	Weekly written examinations
7	3	Students who gained information in the field of lab training live up to the required level	Alkaline phosphatase, Acid phosphatase, Alanine amiotransferase, Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase	The use of scientific references and use the board	Weekly written examinations
8	3	Students who gained information in the field of lab training live up to the required level	Serological tests: VDRL, ASO- Titer, Hepatitis tests	The use of scientific references and use the board	Weekly written examinations
9	3	Students who gained information in the field of lab training live up to the required level	C-reactive protein test, Rheumatic factor test, Rose Bengal test, Typhoid fever test(Widal test), Pregnancy Test	The use of scientific references and use the board	Weekly written examinations
10	3	Students who gained information in the field of lab training live up to the required level	General urine examination, urine specimen collection .	The use of scientific references and use the board	Weekly written examinations
11	3	Students who gained information in the field of lab training live up to the required level	Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count, Platelets count	The use of scientific references and use the board	Weekly written examinations
12	3	Students who gained information in the field of lab training	Blood typing, Coombs test, Bleeding time, ESR	The use of scientific references	Weekly written examinations

		live up to the required level		and use the board	
13	3	Students who gained information in the fiel of lab training live up the required level	Microbiological tests: culture and sensitivity tests, Staining methods	The use of scientific references and use the board	Weekly written examinations
14	3	Students who gained information in the fiel of lab training live up the required level	Culture media, Enriched culture media for general use	The use of scientific references and use the board	Weekly written examinations
15	3	Students who gained information in the fiel of lab training live up the required level	Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis	The use of scientific references and use the board	Weekly written examinations

11. Course Evaluation

Distribution of the grade out of 100 according to the tasks assigned to the student, so that the weekly exams are 40 and the final exam is 60.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Fisch back . a manual & laboratory &diagnostic tests ;6th edition
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course description form

1. Course Name:
Hospital training
2. Course Code:
50305510
3. Semester / Year:
Year long course/ 5th year
4. Description Preparation Date:
6-2-2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
6 hr
7. Course administrator's name (mention all, if more than one name)
prof mohammed mahmood mohammed Assist. Prof. Dr. Kadhim Ali Kadhim Assist. Prof. Dr. Abber abd al-hadi rasheed Assist. Prof. dr .hadeel delman najm Lec dr. ola ali nassr Lec. Lubab tareq nafea Lec. Dr. turath nabeel Ibrahim Lec. Dr haider raheem mohammed Lec. Sura abbas khdair Lec. Shaymaa hasan abbas Assist. Lec. Noor wafaa hashim Lec. Zahraa abdul ghani
8. Course Objectives

Course Objectives	1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment. 2- To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them.

9. Teaching and Learning Strategies

Strategy	Small group discussion, clinical sessions in the hospital, tour with hosp pharmacist , oral exam and final exam

10. Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	10	Internal ward	Cardiovascular disease, respiratory system disease, kidney disease (acute and chronic kidney failure), ulcerative stomach	Whiteboard, data show	Theoretical exam, class discussions

			disease, diabetes and its complications		
2.	5	Surgical ward	Pre-operative care, post-operative care, nutrients, anesthesia, hernia, appendix, diabetic foot, gallstones, deep vein thrombosis, breast cancer, kidney stones	Whiteboard, data show	Theoretical exam, class discussions
3	5	Gynecological ward	Miscarriage, diabetes and hypertension during pregnancy, thyroid disease, epilepsy, anemia and urinary tract infection during pregnancy, ectopic pregnancy and molar pregnancy, ovarian cysts and uterine wall thickening.	Whiteboard, data show	Theoretical exam, class discussions
4	10	Pediatric ward	Acute shortness of breath, heat cramps, jaundice and its complications, digestive system diseases, nervous system diseases	Whiteboard, data show	Theoretical exam, class discussions

11.Course Evaluation	
Mid term 40 score final score 60 score	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Behrouz Barbara G.Wells & Joseph T. Dipiro,Pharmacotherapy handbook, latest edition. British National Formulary (BNF) current edition.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Mary Ann, Text book of Applied therapeutics, latest edition
Electronic References, Websites	

Course Description Form

1. **Course Name**:	
Dosage Form Design	
. Course Code:	
50303508	
3. Semester / Year:	
Second semester/ 5th year	
4. **Description Preparation Date**:	
5/2/2025	
5. Available Attendance Forms:	
Attendance	
6. **Number of Credit Hours (Total) / Number of Units (Total)**	
2 hours theoretical only	
7. Course administrator's name (mention all, if more than one name)	
Name: Lec. Dr. Mohammed Hussain Neama Email: mohammedhussain@uomustansiriyah.edu.iq Lec. Ali Khidher Abbas Email: pharm.alikdhir@uomustansiriyah.edu.iq	
8. Course Objectives	
Course Objectives	1. Describe the development and purpose of the United State Pharmacopeia (USP) and the National Formulary (NF) 2. Describe the central features of a typical drug monograph 3. Compare and contrast significant drug regulation and control laws and their impact on pharmacy 4. Compare and contrast an Investigational New Drug (IND) Application from a New Drug Application (NDA) 5. Explain the concept of pharmaceutical care 6. Summarize the Code of ethics for Pharmacists of the American Pharmacists Association 7. Differentiate between phase 1, phase2, phase 3, and phase 4 clinical trials 8. Give examples of the sources of new drug 9. Define an orphan drug 10. Define a package insert and the information contained therein 11. List common terms used in the Current Good Manufacturing Practice (cGMP) for finished pharmaceuticals. 12. Describe the various types of tamper-evident packaging and provide a product example of each type 13. Differentiate between pharmaceutical manufacturing and extemporaneous compounding. 14. List common terms used in the Current Good Manufacturing Practice (cGMP). 15. Describe the organization and personal required by cGMP 16. Describe the various types of tamper-evident packaging and provide a product example of each type 17. Differentiate between pharmaceutical manufacturing and extemporaneous compounding 18. List reasons for the incorporation of drugs into various dosage forms 19. Compare and contrast the advantages/ disadvantages of various drug dosage forms 20. Describe the information needed in preformulation studies to characterize a drug substance for possible inclusion into a dosage form 21. Describe the mechanisms of drug degradation and provide examples of each 22. Describe the five types of drug instability of concern to the practicing pharmacist 23. Summarize approaches employed to stabilize drugs in pharmaceutical dosage forms

	24. Calculate rate reactions for various liquid dosage forms 25. Categorize various pharmaceutical ingredients and excipients 26. Describe the various types of drug absorption from pharmaceutical dosage form 27. Explain how drug dissolution affects drug absorption 28. Describe how a drug's chemical formula can affect its absorption when administered by various routes of administration. 29. Describe physical and chemical characteristics of a drug that affect its dissolution from various dosage forms. 30. Summarize the advantages/ disadvantages of the various types of parenteral injections. 31. Perform various basic pharmacokinetic calculations. 32. List the factors that a pharmacist must consider when determining a dosage regimen fo specific patient**.....**

9. Teaching and Learning Strategies

Strategy	Lectures Oral discussion Quizzes Reports

10. Course Structure

Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2	History of pharma and pharmacopeia	Introduction to pharmac	Lecture/ theory	Oral discussion
2	2	All laws related to drug development	Regulation laws on drug	Lecture/ theory	Oral discussion
3	2	new drug applications	Development of new drugs and approval process	Lecture/ theory	Oral discussion
4	2	Examples on new drugs	Drug identification according to FDA	Lecture/ theory	Oral discussion
	Mid-term exam				
5	2	Good manufacturi practice principles	Good manufacturing practice	Lecture/ theory	Oral discussion
6	2	Good compoundin practice principles	Good compounding practice	Lecture/ theory	Oral discussion
7	2	The reason for dosage forms	Dosage form design pharmaceutical principl	Lecture/ theory	Oral discussion
8	2	Physical principles	Dosage form design pharmaceutical principl	Lecture/ theory	Oral discussion
9	2	Physical principles	Dosage form design pharmaceutical principl	Lecture/ theory	Oral discussion
10	2	Excipients	Formulation principles	Lecture/ theory	Oral discussion
11	2	Coloring flavoring agents	Formulation principles	Lecture/ theory	Oral discussion
12	2	Drug absorption	Biopharmaceutics principles	Lecture/ theory	Oral discussion
13	2	Drug metabolism	Biopharmaceutics principles	Lecture/ theory	Oral discussion
14	2	Bioequivalency an comparing differer	Pharmacokinetics	Lecture/ theory	Oral discussion

		dosage forms			
15	2	Calculation of expiration date of medications	Pharmacokinetics	Lecture/ theory	Oral discussion
Final exam					

11. Course Evaluation

Mid term Exam	25 marks
Quizzes and activities	5 marks
Final Exam	70 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Ansel's Pharmaceutical dosage forms and drug delive systems 9th edition by Howard C. Ansel. Sinko. Wolt Kluwer, Lippincott Williams &Wilkins. Philadelphia 2011
Main references (sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third edition, Michael E. Aulton (Author). Churchill, Livingstone- Elsevier
Recommended books and references (scientific journals, reports...)	none
Electronic References, Websites	Library references

Course Description Form

1. Course Name:
pharmaceutical biotechnology
2. Course Code:
50303507
3. **Semester / Year**:
Second semester / fifth year
4. **Description Preparation Date**:
5/2/2025
5. Available Attendance Forms:
Attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
One credit (one hour each week)
7. Course administrator's name (mention all, if more than one name)
Name: Zahraa Amer Al-juboori Email: Zahraa_ammer@uomustansiriyah.edu.iq Name : Nora Zawar Yousif Email ; pharm.nora.zawar@uomustansiriyah
8. Course Objectives

Course Objectives	At the end of the course, students are expected to learn: 1. Get information about biotechnology products e.g. proteins 2. Get information about basic principle of formulation and preparation of biotechnology products and biopharmaceutical drugs 3. Be able to formulate therapeutic proteins 4. Get information about freeze drying and excipients used during formulation of protein by this technique 5. Get information about route of protein delivery; both traditional methods of administration and alternative routes. 6. Get information about pharmacokinetics of proteins, absorption, distribution and elimination.
9. Teaching and Learning Strategies	
Strategy	1. Using different teaching methods (lectures, discussions, investigation and brain storming). 2. There are different sampling clarification and practicing to enrich the course (scientific videos, interactive board and schemes). 3. Publishing these course lectures and scientific activities on the official site of the university (academic site). 4. Lectures are given on scientific electronic sites (google classroom and free conference call). 5. Communicate with students through different social and scientific methods including google classroom, Facebook, Viber and WhatsApp. 6. There will be two term exams given during this semester. The best two out of three will be considered for the First & Second exam. This means there will NO makeup exams. Missing one of the two left exams means a ZERO grade will be given for that exam. 7. Attendance is mandatory and University regulations will be enforced. 8. All Cheating incidents will be reported to the chair. The following activities are considered cheating:

	a. Turning in assignment that includes parts of someone else work. b. Turning in someone else assignment as your own. c. Giving assignment to someone else to turn in as their own. d. Copying answers in a test or quiz. e. Taking a test or quiz for someone else. f. Having someone else take a test or quiz for you.

10.Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Biotechnology Molecular biotechnology Pharmaceutical biotechnology	Introduction to biotechnology	Theory/ interactive	Oral discussion
2	1	Microbiological concerns Sterilization of final product Removal of pyrogen	Formulation of pharmaceutical biotechnology	Theory/ interactive	Oral discussion
3	1	Excipients in parenteral dosage form of bioproduct Antioxidant Solubility enhancer Antiadsorpant	The components of parenteral dosage form	Theory/ interactive	Oral discussion
4	1	Preservatives and osmotic agents Freeze drying	Continue to the previous lecture	Theory/ interactive	Oral discussion
Mid term					
5	1	Parenteral administration	Protein delivery	Theory/ interactive	Oral discussion
6	1	Alternative routs	Oral , nasal , pulmonary rectal routs of administration of bioproducts	Theory/ interactive	Oral discussion
7	1	Oral route of administration	Improvement of oral rout and minimizing the obstacles	Theory/ interactive	Oral discussion
8	1	insulin production	The production of insulin via biotechnology	Theory/ interactive	Oral discussion
9	1	Vaccine production	Method to produce vaccines	Theory/ interactive	Oral discussion
10	1	Pharmacokinetics of protein and therapeutic peptides	-Pharmacokinetics of protein therapies Absorption of protein therapies, strategies to overcome obstacles associated with oral protein delivery, intravenous versus subcutaneous protein	Theory/ interactive	Oral discussion

			delivery		
11	1	Pharmacokinetic (volume of distribution)	Distribution mechanisms and volumes of distribution for kinetic Drug from therapeutic proteins –Receptor-mediated distribution	Theory/ interactive	Oral discussion
12	1	Pharmacokinetic (metablosim of protein)	-Proteolysis -Release protein therapies from the body	Theory/ interactive	Oral discussion
13	1	Pharmacokinetic (elimination of protein via kidney)	Renal protein metabolism and secretion processes	Theory/ interactive	Oral discussion
14	1	Pharmacokinetic (elimination of protein via liver)	By receptors mediated -By direct shuttle - By metabolic receptors	Theory/ interactive	Oral discussion
Final exam					

10. Course Evaluation	
Mid term Exam	25 marks
Quizzes and activities	5 marks
Final Exam	70 marks

11. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Pharmaceutical Biotechnology Fundamentals and Applications, Third Edition Edited By Daan J. A. Crommelin, Robert D. Sindelar, Bernd Meibohm Copyright 2008
Main references (sources)	Pharmaceutical Biotechnology Fundamentals and Applications, Third Edition Edited By Daan J. A. Crommelin, Robert D. Sindelar, Bernd Meibohm Copyright 2008
Recommended books and references (scientific journals, reports...)	PubMed articles about the different topics to keep with this revolutionary science
Electronic References, Websites	Library references