Course Description Form/ Stage 2

1. Course Name:

Physical Pharmacy

2. Course Code:

Physical Pharmacy I / 218 PPp1 practical physical pharmacy 1/ph2
Physical Pharmacy II / 225 PPp2 practical physical pharmacy 1/ph2

3. Semester / Year:

First and Second Semester

4. Description Preparation Date:

4/2024

5. Available Attendance Forms:

On campus

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

3 hours/week (Theory) , 2hours/ week (Practical), Total units=4

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

1- Name: Assist. Prof. Eman Beker Hazim Al-Khedairy /(First and Second semester)
E-mail: : emanbekir@copharm.uobaghdad.edu.iq
2- Name: Assist.Prof. Lena Murad Thomas / First and second Semester)
E-mail: : linatomas@copharm.uobaghdad.edu.iq
3- Name: Assist. Prof. Abeer H. Khasraghi /(First and Second semester)
E-mail: : abeer.jassem@copharm.uobaghdad.edu.iq
4-Name: Assist. lecturer NOOR MOHAMMED DAWOOD / (First and second Semester)
E-mail: : nour.yahia@copharm.uobaghdad.edu.iq

8. Course Objectives

Course Objectives	1- Physical pharmacy integrates knowledge of mathematics, physics and chemistry and applies them to pharmaceutical dosage form development 2- provides the basis for understanding chemical and physical phenomena that govern actions of pharmaceutical products, enabling rational decisions on dosage forms

9. Teaching and Learning Strategies

Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory experiments 4- Inverted classrooms

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First Semester					

1	3+2	Understand the differences in binding forces and their relevance to different types molecules.	States of matter, binding forces between molecules,	- Lectures -White board -Data show -Power point -Explanatory diagrams -Scientific YouTube videos -laboratory experiments	-Written exams - Oral exams -Laboratory reports
2	3+2	Knowledge of the properties of the gas andliquid states of matter	Gases, and liquids states		
3	3+2	Describe the solid state, crystallinity, solvates, and polymorphism	Solid state		
4	3+2	Understand phase equilibria and phase transitions between the three main states of matter	Phase equilibria and phase rule; thermal analysis		
5	3+2	Understand the properties of non-electrolyte solutions	Solutions of non-electrolytes,		
6	3+2	Define ideal and real solutions using Raoult's law	Ideal and real solutions,		
7	3+2	Identify and describe the four colligative properties of non-electrolytes in solution	Colligative properties of non-electrolytes.		
8	3+2	-Understand the important properties of solutions of electrolytes -Compare and contrast the colligative properties of electrolytic solutions and solutions of nonelectrolytes	Solution of electrolytes.		
9	3+2	Describe the Brönsted - Lowry and Lewis electronic theories Identify and define the four	Ionic equilibria, modern theories of acids, bases and salts, acid-base equilibria,		

		classifications of solvents			
10	3+2	To understand the concept of acid- base equilibrium	Proton balance equation		
11	3+2	-Apply the buffer equation as the Henderson–Hasselbalch equation, for a weak acid or base and its salt - Determination of buffer capacity	Buffered solutions		
12	3+2	Learn how to prepare pharmaceutical buffers	Preparation of buffer solutions		
13	3+2	Describe the concept of tonicity and its importance in pharmaceutical systems	isotonic solutions and methods of adjusting tonicity		
Half-Year Break					
Second Semester					
1	3+2	-To understand the concepts of solubility , factors affecting solubility, types of solvents - solubility of gases	Solubility and distribution phenomena,		
2	3+2	To understand factors affecting the solubility of liquids and those affecting ideal solubility of solids	Solubility of liquids in liquids and Ideal and non- ideal solubility of solids in liquids,.		
3	3+2	Understand the factors affecting the solubility of different types of solids	Solubility of salts, weak electrolytes		
4	3+2	Understand the phenomena of extraction and preservation	Distribution of solutes between immiscible solvents		
5	3+2	Understand the reaction rate,	Kinetics, rate and orders of reactions		

		reaction order, and molecularity			
6	3+2	Understand the concept of stability and expiration date of a medicament	Influence of temperature and other factors on reactions rate, decomposition of medicinal agents and accelerated stability analysis		
7	3+2	Understand the terms surface tension and interfacial tension and their pharmaceutical application	Interfacial phenomenon		
8	3+2	Understand the mechanisms of adsorption on liquid and solid interfaces	Spreading coefficient and wetting property		
9	3+2	Recognize the electric properties of interfaces and factors affecting it	Electric properties of interfaces and zeta potential,		
10	3+2	Differentiate between different types of colloidal systems and their main characteristics and their kinetic properties	Colloids, dispersed system and its pharmaceutical application, types of colloidal systems, kinetic properties		
11	3+2	Understand the concept of rheology , Differentiate flow properties and corresponding rheograms between Newtonian and non-Newtonian materials and application of rheology in the pharmaceutical sciences and practice of pharmacy	Rheology, Newtonian systems		
12	3+2	Understand and define the following concepts: shear rate,	Thixotropy		

		shear stress, viscosity, kinematic viscosity, fluidity, plasticity, yield point, pseudoplasticity, shear thinning, dilatancy, shear thickening, thixotropy			

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)	Martin's Physical Pharmacy and Pharmaceutical Sciences: Physical Chemical and Biopharmaceutical Principles in the Pharmaceut Sciences, 6th Edition
Main references (sources)	Text Book mentioned above
Recommended books and references (scientific journals, reports...)	Florence AT, Attwood D. FASTtrack: Physical Pharmacy. Pharmaceutical Press; 2008 Almoazen H. Felton L.: Remington: Felton Essentials of pharmaceutics. 2012.
Electronic References, Websites	

1. Course Name:
Microbiology I
2. Course Code:
217 ClMm
3. Semester / Year:
First/Second
4. Description Preparation Date:
29/2/2024
5. Available Attendance Forms:
In -person attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
5/4
7. Course administrator's name (mention all, if more than one name)

Prof Dr. Maysoon abdul-zahra	maysoona.merdaw@copharm.uobaghdad.edu.iq
Assist. prof. Zainab Majeed Hashim	zainab.atyia@copharm.uobaghdad.edu.iq
Assist. lecturer Mohammad Hasan Muhammad	muhammad.h@copharm.uobaghdad.edu.iq
Assist. lecturer Hiba Haidar Kadhum	heba.h@copharm.uobaghdad.edu.iq
Sarah Nabil Abdul-Waduod	sarah.nabil@copharm.uobaghdad.edu.iq

8. Course Objectives

Course Objectives	• Understanding bacteria in terms of their presence in the environment and their nutritional requirements for growth and reproduction • Methods of transmission of bacteria and the diseases they cause • Treatments and resistance to antibiotics and environmental factors

9. Teaching and Learning Strategies

Strategy	• Presentation and recitation • Interactive discussions • Brainstorming • Research and induction

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit	Learning method	Evaluation method
1	3	The history of microbiology and its importance Anatomy of bacteria, surface appendages, capsule, Bacterial cell wall G+ve & G-ve Cytoplasmic membrane Practical: shapes of bacteria	Introduction to microbiology	Lectures, Discussions, and Reports	Exam and classroom activities
2	3	Physiology of bacterial cell, bacterial growth and bacterial requirement, bacterial growth curve Practical: staining of bacteria	Bacterial growth requirements	=	=

3	3	Genetics definition of nucleic acids. Genetic codes and types of mutations Methods of transferring genetic material, biotechnology Recombinant DNA Practical: Bacterial movement	Bacterial genetics	=	=
4	3	Bacterial sporulation Practical: staining of spores and its position	Sporulation	=	=
5	3	Sterilization: (chemical + physical methods). Practical: preparation and sterilization of media	Sterilization	=	=
6	3	Chemotherapy (antibiotics, etc.) Practical: isolation of bacterial colonies	Antibiotics	=	=
7	Mid-term examination				
8	3	Pseudomonas and Neisseria Practical: identification of bacterial colonies	Pseudomonas and Neisseria	=	=
9	3	Staphylococcus and Streptococcus Practical: biochemical reaction; oxidase and catalase test	Staphylococcus and Streptococcus bacteria	=	=
10	3	Bacillus bacteria and Vibrio cholera Practical: biochemical reaction; urease activity	Bacillus bacteria and Vibrio cholera	=	=
11	3	Clostridium bacteria Practical: bacterial reaction to citrate	Clostridium bacteria	=	=
12	3	Diphtheria bacteria, acne bacteria, and listeria practical: IMVEC test	Diphtheria bacteria, acne bacteria, and listeria	=	=

13	3	Enterobacteriaceae family Practical: identification of lactose fermenter and non-lactose fermenter bacteria	Enterobacteriaceae family	=	=
14	3	Infectious spirochete bacteria and salmonella Practical: identification of lactose fermenter and non-lactose fermenter bacteria	Infectious spirochete bacteria and salmonella	=	=
15	3	Tuberculosis and leprosy bacteria Practical: antibiotics sensitivity test	Tuberculosis and leprosy bacteria	=	=

11. Course Evaluation

Mid-term examination (15 marks)

Quiz and homework (5 marks)

Practical work (20 marks)

Final examination (60 marks)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lippincotts illustrated review microbiology, 2nd ed. -A color Atlas of microbiology by Ronald John Olds -Jawetz, Melnick, & Adelberg's. Medical Microbiology 26th ed.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	-Bailey & Scott’s Diagnostic Microbiology 14th ed. -Hugo and Russell's Pharmaceutical Microbiology; 8th. ed.
Electronic References, Websites	

Course Description Form

1. Course Name:

Microbiology II

2. Course Code:

224 ClMm

3. Semester / Year:

Second/Second

4. Description Preparation Date:

29/2/2024

5. Available Attendance Forms:

In-person attendance

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

5/4

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

Assist. prof. Dr.Zainab Majeed Hashim	zainab.atyia@copharm.uobaghdad.edu.iq
Lecturer Dr.: Khalid Abdul-Hussain	khaled.abd@copharm.uobaghdad.edu.iq
Lecturer Dr.: Shaymaa Abdul-Zahra	shaymaa.abbas@copharm.uobaghdad.edu.iq
Lecturer Dr. Ali S. Salman	ali.salman@copharm.uobaghdad.edu.iq
Assist. lecturer Muhammad Hasan Muhammad	muhammad.h@copharm.uobaghdad.edu.iq
Wasan G. Hussein	wasn.hussein@copharm.uobaghdad.edu.iq

8. Course Objectives

Course Objectives	• Providing students with information about parasitic and viral diseases affecting human health, their most important causes and vectors, and methods of treating and controlling them. • Providing students with basic information about the immune system, its components, and how it works, and discussing the most important disorders of the immune system and the sources of dysfunction that lead to these disorders.

9. Teaching and Learning Strategies

Strategy	• Presentation and recitation • Interactive discussions • Brainstorming • Research and induction

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit	Learning method	Evaluation method
1	2	Introduction to parasites that infect humans and their classification	Introduction to Parasitology	Lectures, Discussions, and Reports	Exam and classroom activities
	1	innate immunity and describe the most important physical and	Innate immunity		

		chemical immune barriers, also clarify the immediate and induced immune response			
2	1	Description of the pathogenic amoeba (*Entamoeba histolytica*) practical: fixed slides for pathogenic and non-pathogenic amoeba+ presentation of photographic slides using data-show	Pathogenic amoeba	=	=
	1	introduction to viruses, viral shape and size	Introduction to Virology		
	1	Cytokines definition, families and function	Immunology/ Cytokines		
3	2	Description of gastrointestinal and reproductive systems, tissue flagellates, and ciliates Practical: fixed slides for flagellate + presentation of photographic slides using data-show	Human parasitic flagellates	=	=
	1	Adaptive immune response, T and B cells and their functions	Specific immune response		
4	1	Malaria: life cycle and pathogenesis Practical: fixed slides for plasmodium+ presentation of photographic slides using data-show	Parasite/ malaria	=	=
	1	Structure of viruses, including the basic unit of infection, the gene, the outer envelope, and its functions	Structure of viruses		
	1	Integration of the immune response with both non-specialized	Immune response		

		and specialized responses			
5	2	Comparison between different types of malaria and toxoplasmosis Practical: fixed slides for plasmodium and toxoplasma + presentation of photographic slides using data-show	Blood flagellate	=	=
	1	Basic structure of antibodies, their function and types	Antibodies		
6	1	Tapeworms, their life cycle and pathogenesis Practical: fixed slides for tape worms + presentation of photographic slides using data-show	Parasite/ tapeworms	=	=
	1	Describe the different stages of virus reproduction and the accompanying structures produced during replication cycle	Viral reproduction		
	1	Definition of hypersensitivity, its types, and the mechanisms that lead to type 1 and type 2 hypersensitivity	Hypersensitivity reactions		
7	Mid-term examination				
8	1	Tape worms in pigs and tape worms in cows Practical: fixed slides for tape worms: *T saginata* (beef tapeworm), T. solium (pork tapeworm) and cyct + presentation of photographic slides using data-show	Parasite/ tape worms	=	=

	1	One-step growth curve, methods of isolating viruses, and studying the most important genetic mutations	Growth curve and gene interaction in viruses		
	1	Mechanics that lead to type III and IV hypersensitivity	Hypersensitivity reactions/ continue		
9	2	Dwarf tapeworms Practical: fixed slides for dwarf worm + presentation of photographic slides using data-show	Parasite/ tape worms	=	=
	1	Definition of tumors, their causes, and the mechanisms that contribute to the growth of tumors	Tumor immunity		
10	1	Blood and urinary schistosomiasis, their classification, forms, life cycle, pathology, diagnosis and treatment Practical: fixed slides for egg of Schistosoma and larva + presentation of photographic slides using data-show	Parasite/ schistosomiasis	=	=
	1	A description of the most DNA viruses, important families pathogenic to humans, along with a description of the most important diseases they cause and methods of diagnosis and treatment.	DNA viruses		
	1	How the tumor evades the immune response, as well as the most important immune strategies used in treatments	Tumor immunity/ continue		
11	2	Ascaris nematodes and hookworms, their	Parasites/ nematodes	=	=

		description, shapes, life cycle Practical: fixed slides for egg of egg of Ascaris and larva + presentation of photographic slides using data-show			
	1	Tolerance and autoantigens	Autoimmunity		
12	1	Ascaris nematodes and hookworms, Diseases, diagnostic methods and treatments Practical: fixed slides for egg of egg of Ascaris and larva + presentation of photographic slides using data-show	Parasites/ nematodes continue	=	=
	1	Description of RNA viruses, the most important pathogenic families for humans, along with a description of the most important diseases they cause and methods of diagnosing and treating them.	RNA viruses		
	1	Mechanical damage associated with breakdown of tolerance and the presence of autoantibodies	Autoantibodies		
13	3	Pin worms and round worms, their forms, life cycle, pathology, diagnostic methods and treatments Practical: fixed slides for egg of egg of pinworms and roundworms + presentation of photographic slides using data-show	Pin worms and roundworms	=	=
14	2	Diseases caused by free-living worms	Parasite/free living worms	=	=

		Practical: presentation of photographic slides using data-show for free living worms			
	1	Description of RNA viruses, the most important pathogenic families for humans, along with a description of the most important diseases they cause and methods of diagnosis and treating	RNA viruses/ continue		
15	3	Elephantiasis and Trachnella worms, their forms, life cycle, pathology, diagnostic methods and treatments Practical: presentation of photographic slides using data-show for *Wuchereria bancrofti* and Trachnella worms	*Wuchereria bancrofti* and Trachnella worms	=	=

11. Course Evaluation	
Mid-term examination (15 marks) Quiz and homework (5 marks) Practical work (20 marks) Final examination (60 marks)	
12. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	-Medical Microbiology 24th ed. 2007 by E. Jawetz - Medical parasitology, 5th ed. By Dr. D.R. Arora & Dr. Brij Bala Arora. 2018 - Lab manual for practical virology and parasitology, - Atlas of Helminthes and Protozoa.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:					
Computer Sciences III					
2. Course Code:					
221 ClCs					
3. Semester / Year:					
First /Second					
4. Description Preparation Date:					
29/2/2024					
5. Available Attendance Forms:					
In-person attendance					
6. Number of Credit Hours (Total) / Number of Units (Total):					
2/1					
7. Course administrator's name (mention all, if more than one name)					
1- Name: Assist. Prof. Salema Sultan Email: salma3_sultan@copharm.uobaghdad.edu.iq 2- Name: Assist. Prof. Abdullah A. Abdullah E-mail: abdullah.abd@copharm.uobaghdad.edu.iq 3- Name: Lecturer Wafaa A. Abbas E-mail: wafaa.abbas@copharm.uobaghdad.edu.iq					
8. Course Objectives					
Course Objectives	1- Using Microsoft Excel to perform statistical analyses, data handling, and present data as graphs 2- Provide the principles of to draw and predict chemical structures using ChemBio Office				
9. Teaching and Learning Strategies					
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms				
10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

1	2	Data analysis using Microsoft Excel	Data analysis	- Lectures -Scientific YouTube videos -Laboratory experiments	-Written exams - Oral exams -Laboratory reports
2	2	Importing files with different formats into Excel	Importing files	=	=
3	2	Calculate the statistical properties of variables	Descriptive statistics	=	=
4	2	Performing paired t-test in Excel to find the difference in the means of one sample in two occasions	One sample t-test	=	=
5	2	Performing unpaired t-test in Excel to find the difference in the means of two independent and related samples	Two Sample t-test	=	=
6	2	Performing analysis of variance test in Excel to find the difference in the means of multiple samples	ANOVA Test	=	=
7	Midterm examination				
8	2	Performing the correlation analysis of two	Correlation	=	=

		variables using Excel			
9	2	Performing the regression analysis using Excel	Regression	=	=
10,11	4	Illustrating ChemBio Office interface	Principle of ChemBio Office	=	=
12,13	4	Drawing two-dimensional chemical structures using ChemBio Office	2D Structure Draw	=	=
14	2	Drawing three-dimensional chemical structures using ChemBio Office	3D Structure Draw	=	=
15	2	ChemoBio Office to predict compounds	Prediction of compounds based on their IR and UV spectroscopy results	=	=

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily practical, monthly practical or written exams, and reports	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Microsoft office Professional 2019, BY Linda Foulkes, Senior Editor: Afshaan Khan ISBN 978-1-83921-725-8
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Microsoft office Professional 2010, BY Joyce Cox, Jo an Lambert & Curtis Frge
Electronic References, Websites	

Course Description Form

1. Course Name:
Computer Sciences IV
2. Course Code:
228 ClCs
3. Semester / Year:
Second/ Second
4. Description Preparation Date:
29/2/2024
5. Available Attendance Forms:
In-person attendance
6. Number of Credit Hours (Total) / Number of Units (Total):
2/1
7. Course administrator's name (mention all, if more than one name)
1- Name: Assist. Prof. Salema Sultan Email: salma3_sultan@copharm.uobaghdad.edu.iq 2- Name: Assist. Prof. Abdullah A. Abdullah E-mail: abdullah.abd@copharm.uobaghdad.edu.iq 3- Name: Lecturer Wafaa A. Abbas E-mail: wafaa.abbas@copharm.uobaghdad.edu.iq
8. Course Objectives

Course Objectives	Providing the student with the skill of using the statistical program SPSS in applying statistical relationships. Enabling the student to conduct statistical tests, interpret their results, and represent data in the form of graphs.
9. Teaching and Learning Strategies	
Strategy	1-Lectures and Presentation 2-Discussions 3- Laboratory application 4- Inverted classrooms

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	SPSS Environment: data editor, output	Introduction to SPSS	- Lectures	-Written exams - Oral exams

		viewer, syntax editor – Data view window – SPSS Syntax – Data creation – Importing data – Variable types in SPSS – Creating a Codebook in SPSS.		-Scientific YouTube videos -Laboratory experiments	-Laboratory reports
2	2	Sorting, grouping, and splitting data.	Working with Data	=	=
3	2	Descriptive statistics for continuous variables	Exploring Data	=	=
4	2	Descriptive statistics for categorical variables.	Exploring Data	=	=
5	2	Correlation and regression analysis	Analyzing Data	=	=
6	2	Chi-square test of independence	Analyzing Data	=	=
7	Midterm examination				
8 and 9	4	One Sample T-Test	Analyzing Data	=	=
10	2	Paired Samples T-Test	Analyzing Data	=	=
11	2	Independent Samples T-Test	Analyzing Data	=	=
12	2	One-Way ANOVA.	Analyzing Data	=	=
13 and 14	4	Non- parametric test	Analyzing Data	=	=
15	2	Presentation of data by graphs	Graphing Data	=	=

11.Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily and monthly, oral or written exams and, reports	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	

Main references (sources)	SPSS for Intermediate Statistics: Use and Interpretation, Nancy L, Leech et. al., Second edition published in 2005 by Lawrence Erlbaum Associates, Inc.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	IBM 2016, IBM Knowledge Center: SPSS Statistics, IBM, https://www.ibm.com/support/knowledgecenter/SSLVMB/welcome/

Course Description Form

13. Course Name:
physiology 1
14. Course Code:
219 Ptph1
15. Semester / Year:
First Semester
16. Description Preparation Date:
17.Attendance:
Attendance
18.Number of Credit Hours (Total) / Number of Units (Total)
3 hr theoretical +1 hour practical (52 hr)
19. Course administrator's name (mention all, if more than one name)
Assist Prof Dr. Ali Faris Hassan- EMAIL: ali.hussein@copharm.uobaghdad.edu.iq **Assist Prof Dr. Ahmed hammed - EMAIL:**ahmed.abd@copharm.uobaghdad.edu.iq **Assist Prof Dr. ali jabbar** ali.alhosein@copharm.uobaghdad.edu.iq **Lecturer: Safa Mustafa** **Assist lecturer . Myriam Rashid mariam.abd@copharm.uobaghdad.edu.iq**
20. Course Objectives

Course Objectives	**Study the transportation of molecules across cell membrane.** **study the physiology of renal system.** **Study the physiology of respiratory system.** **Study the physiology of nervous system.** **Study the physiology of muscles**

21. Teaching and Learning Strategies

Strategy	• Using YouTube video to show some physiological process. • Using some schemes or diagrams from the net • Frequent Examination • Using clicker device to achieve sudden exam.

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	6	Transport system	**Transport system**	Attendance lectures	examination
3-6	12	Physiology of renal system	**Renal system**		
7-9	12	Physiology of respiratory system	**Respiratory system**		
10-12	6	Physiology of nervous system	**Physiology of Nervous system**		
13-15	6	Physiology of muscle contraction	**Muscle contraction**		

23. Course Evaluation

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

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Ganong's Review of Medical Physiology, 23rd Edition

Main references (sources)	---------
Recommended books and references (scientific journals, reports…)	**research gate**
Electronic References, Websites	**YouTube**

Course Description Form

25. Course Name:
Organic Chemistry II
26. Course Code:
216PcOc2
27. Semester / Year:
First semester/ 2023−2024
28. Description Preparation Date:
February / 2024
29. Available Attendance Forms:
on campus
30. Number of Credit Hours (Total) / Number of Units (Total)
45 hours/ 4 units
31. Course administrator's name (mention all, if more than one name)
Name: **May Mohammed Jawad Al- Mudhafar** Email: may.mj.almudhafar@copharm.uobaghdad.edu.iq Name: **Mohammed Abdulameer Oleiwi** Email: mohammed.abolAmer@copharm.uobaghdad.edu.iq Name: **Ammar Kuba** Email: amar.mahmoud@copharm.uobaghdad.edu.iq Lab instructors Name: **Azhar Mahdi Jasim** Email: **azharmjk@copharm.uobaghdad.edu.iq** Name: **Sumayah Saadi Abbas** Email: **sumayah.saadi@copharm.uobaghdad.edu.iq** Name: **Nedaa A. Hameed A. Rahim** Email: **nedaarahim@copharm.uobaghdad.edu.iq**
32. Course Objectives

Course Objectives	• Studying the basics of organic chemistry for some chemical groups that are considered the foundations of the study of pharmacy (such as studying benzene and its derivatives, aldehydes, ketones, carboxylic acids and their derivatives, amines and their derivatives , phenols). Learn their names, properties, interactions, and methods of preparation. • Study methods for the qualitative detection of organic compounds. • Teaching students the safe and correct ways to handle chemicals and glassware. • To know how to detect chemical compound types.
33.	Teaching and Learning Strategies
Strategy	**Knowledge** **1**- Preparing students to have broad knowledge in analytical, organic and pharmaceutical chemistry so that they can employ that knowledge in the field of pharmaceutical treatments (pharmaceutical synthesis or interventions). **2**-Teaching students the appropriate and the safe ways to deal with chemicals, glassware, and devices. **3-**Teaching students the techniques used to identify different chemical substances (traditional and modern spectroscopic methods). **4-** Teaching students the different techniques and methods used in manufacturing medications and different pharmaceutical items. **5-** Study the chemical, physical and metabolic properties of drugs and pharmaceutical substances. **6-** Study modern methods in designing chemical compounds using modern electronic programs. **7-** Study the changes that occur in the chemical groups in the composition of the drug and their effect on the drug's effectiveness and study the mechanism of the drug in the body. **Skills** **1** - Acquire skills in using different methods for preparing and manufacturing pharmaceutical compounds. **2** - Acquire the skill on how to identify, evaluate, and diagnose pharmaceutical chemical compounds. **3** - Acquiring skills in writing scientific reports. **4** - The student acquires the skill in using laboratory equipment and tools. **Learning and teaching methods** **1**- Giving scientific lectures **2**- Conduct practical experiments **3**- Preparing scientific research individually or collectively **4**- Assigning students to homework

	5- Assigning the student to prepare seminars and discussions **6**- Providing the opportunity for the student to enhance self-education

34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	10	The economically important aromatic hydrocarbons are benzene, toluene, (ortho, para) xylene. Approximately 35 millio tons of these materials are produced annually. They are obtained from the distillation of coal tar and are used to produce many chemicals and polymers, including styrene, phenol, anilin polyester, and nylon, it is important to study them becaus they are the key for the synthesi of different medications.	Aromatic compounds	Lectures	Quizzes
5-7	12	Many organic medications used the medical field contain carbox groups.	Carboxylic acids and their derivati	Lectures	Oral exams
8-9	5	Their importance comes from, their presence in the human bod in plants, and nature	Amines and their derivatives	Lectures	Oral discussion
10-13	12	In the chemical industry, ketones and aldehydes find use as reagents, solvents, and starting materials to produce other items. Formaldehyde is used to preserve biological specimens and also to manufacture polymers such as Bakelite. Ketones have low toxicity and can dissolve numerous chemical substances.	Aldehydes and ketones	Lectures	quizzes
14-15	5	Plant phenolics are considered to be a vital human dietary component and exhibit tremendous antioxidant activity as well as other health benefits.	phenols	Lectures	Oral discussions

35. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc **20 marks for practical work in the lab and quizzes** **20 marks for mid-term exam and quizzes and oral discussions** **60 marks for final term exam**

36. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	*Organic Chemistry by Robert T. Morrison and Robert N. Boyd. *Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000
Main references (sources)	*Organic Chemistry by Robert T. Morrison and Robert N. Boyd. *Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000
Recommended books and references (scientific journals, reports…)	Organic Chemistry by Janice Gorzynski Smith, 1st edition.
Electronic Reference Websites	https://www.sciencedirect.com/book/9780128128381/organic-chemistry

Course Description Form

1. Course Name:
Organic Chemistry III
2. Course Code:
223 PcOc2
3. Semester / Year:
Second semester/ 2023-2024
4. Description Preparation Date:
March / 2024
5. Available Attendance Forms:
on campus
6. Number of Credit Hours (Total) / Number of Units (Total)

30 hours/ 3 units

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

Name: **May Mohammed Jawad Al- Mudhafar**
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Email: nedaarahim@copharm.uobaghdad.edu.iq

8. Course Objectives

Course Objectives	1-Studying the basics of heterocyclic chemistry for some rings containing nitrogen, sulfur and oxygen which are considered the foundations of the study of pharmacy (like studying pyrrole, furan, thiophene, pyridine, quinoline and isoquinoline) and properties, nomenclature, reactions and preparations. 2-Studying methods for the qualitative detection of various compounds containing heterogeneous rings, such as drugs and organic compounds. 3- Studying the importance of heterocyclic compounds that having numerous applications in pharmaceutical chemistry and play a key role in biochemical functions. A lot of heterocycles are employed in medicine as medications to treat a variety of ailments and injuries.

9. Teaching and Learning Strategies

Strategy	**Knowledge** **1**-Increase knowledge of the basic principles of heterocyclic chemistry. **2**-Studying the methods of chemical reactions related to heterogeneous rings. **3**-Conducting practical experiments to detect the elements that make up heterogeneous rings. **4**-Correct handling of chemicals and glass tools during diagnosis and identification of heterogeneous rings. **5**-The importance of heterocyclic in our life, their presence in nature, in plants, and in our bodies. **Skills** **1**-Gain the skill on how to recognize heterogeneous rings

	2-Gaining the skill on how to detect heterogeneous rings **3**-Gain skill on how to write the practical reports. **Learning and teaching methods** 1-Theoritical lectures 2-running practical experiments 3-scientific research 4-Methodical and supporting books 5-Scientific discussions and seminars

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	5	Heterocyclic organic compounds naming, classification, propertie and chemical structure	Heterocyclic compoun Introduction	Lectures	quizzes
3-5	5	Five-membered heterocyclic organ compounds, sources and preparati	Five heterocyclic compounds, that containin one heteroatom, furan thiophene, and pyrrole.	Lectures	Oral discussio
6-8	5	Five-membered heterocyclic organic compounds, reactions	Five heterocyclic compounds, furan thiophe and pyrrole reactions	Lectures	quizzes
9-10	4	Six-membered heterocyclic organic compounds, naming, sources and preparation, pyridine	Six-membered heterocyclic, introduction	Lectures	Oral discussio
11-13	6	Saturated five-membered heterocyclic organic compounds, sources and preparation	Saturated five-membered heterocyclic organic compounds, introduction	Lectures	quizzes
14-15	5	Two heteroatoms, containing five-membered heterocyclic compounds; types of, synthesis, and reactions.	Organic compounds, Five-membered rings of two-heteroatom	Lectures	quizzes

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

20 marks for practical work in the lab and quizzes

20 marks for mid-term exam and quizzes and oral discussions

60 marks for final term exam

12. Learning and Teaching Resources

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Main references (sources)	*Organic Chemistry by Robert T. Morrison and Robert N. Boyd. *Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,US 2000 *An introduction to the chemistry of heterocyclic compound by Aches R. M. latest ed.
Recommended books and references (scientific journals, reports…)	Organic Chemistry by Janice Gorzynski Smith, 1st edition.
Electronic References, Websites	https://www.sciencedirect.com/topics/chemistry/heterocyclic-compound https://www.uou.ac.in/lecturenotes/science/MSCCH-17/CHEMISTRY%20LN.%203%20HETEROCYCLIC%20COMPOUN -converted%20(1).pdf