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

University of Alkafeel

College of Pharmacy

Academic Program and Course Description Guide

2024

Academic Program Description Form

University Of Alkafeel

Faculty/Pharmacy

Scientific Department:

Academic or Professional Program Name: Bachelor

Final Certificate Name: Bachelor in Pharmaceutical sciences

Academic System: Partial

Description Preparation Date: 2023-2024

File Completion Date: 28-3-2024

Signature:

Head of Department Name:

Asst.Prof.Dr.Saad Mashkoor Waleed

Date: 28-3-2024

Signature:

Scientific Associate Name:

Asst.Prof.Dr. Yasmeen Ali Hussien

Date: 28-3-2024

The file is checked by: *Asst.Prof..Muhammed Kareem Jabbar*

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature: Date: 28-3-2024

Approval of the Dean

Asst.Prof.Dr.Saad Mashkoor Waleed

Course Description

1. Course Name: Analytical chemistry
2. Course Code: 113
3. Semester / Year: 1st semester/1st year
4. Description Preparation Date: 23/3/2024
5. Available Attendance Forms: first year students
6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer. Dr. Ahlam Hussein Hassan Email: ahlam.hussein@alkafeel.edu.iq
8. Course Objectives

Course Objectives	• Review and understand elementary concepts important to analytical chemistry, including the behavior of strong and weak electrolytes. • Evaluate analytical data, including defining key terms and understanding the significance of data analysis. • Introduce gravimetric analysis, covering statistical analysis of data, data rejection, and precipitation methods, along with their applications. • Explore the scope of gravimetric analysis, including the use of inorganic and organic precipitating agents. • Introduce volumetric methods of analysis, focusing

	on volumetric calculations, acid–base equilibria, and pH calculations. • Discuss buffer solutions and the theory of neutralization titrations in simple systems. • Examine the theory of neutralization titrations in complex systems and precipitation titrations. • Calculate pH in complex systems and explore volumetric methods based on complex systems. • Understand equilibria in oxidation–reduction systems and the theory behind oxidation–reduction titrations. • Introduce spectrophotometric analysis, including optical methods of analysis and methods based on the absorption of radiation.

9. Teaching and Learning Strategies

Strategy	• Lectures • Classroom discussions and student participation in scientific discussion • Practical laboratory experiments • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	6	• Providing the student with the concept of analytical chemistry and identifying its types • Identify important terms in analytical chemistry • Providing students with the concept of hydrolysis, pH, and electrolyte solution	Introduction to analytical chemistry Strong and weak electrolytes	Lectures and scientific discussions	Oral and written exams
3-4	6	• Understand the meaning of concentration and study	Concentration	Lectures and	Oral and

		methods of calculating concentration and different units of calculating concentration • Applying the rules for calculating concentrations to determine the concentration of a sample in a model with different concentration units	calculation units	scientific discussions	written exams
5	3	• Identify the meaning of accuracy and precision of analytical methods • The student become able to write a detailed report for any analytical method in terms of its accuracy and accuracy • Providing the student with the concept of main value	Accuracy and precision	Lectures and scientific discussions	Oral and written exams
6-7	6	• Understanding the mechanism of weight analysis and its difference from other types of analysis • Study methods of gravimetric analysis	Gravimetric Analysis	Lectures and scientific discussions	Oral and written exams
8	3	• Gain knowledge of reagents, their types and properties • Understanding the mechanism of precipitate formation and the factors affecting the increase in particle size	Organic and inorganic reagents	Lectures and scientific discussions	Oral and written exams
9	3	• Performing mathematical operations to calculate the value of the G. F. of the analyte • The student become able to extract the weight percentage of an analyte in a sample	Calculate the weight of an analyte in a sample	Lectures and scientific discussions	Oral and written exams
10-11	6	• Providing the student with the concept of volumetric analysis and its methods	Volumetric analysis	Lectures and scientific discussions	Oral and written exams
12	3	• Understanding the mechanism of titration and the factors affecting it • Distinguish between the equivalence point and the	The titration	Lectures and scientific discussions	Oral and written exams

		end point of the reaction			
13-14	6	• Mathematical applications to calculate the concentration of an unknown substance or calculate the weight or weight percentage of a sample in a model	Equilibria in oxidation-reduction system; theory of oxidation-reduction titrations.	Lectures and scientific discussions	Oral and written exams
15	3	Provide students with a theoretical back ground in optical methods. It enables students to understand the importance of judging the accuracy and precision of experimental data and techniques of analysis.	Spectrophotometric analysis: An introduction to optical methods of analysis; Methods based on absorption of radiation	Lectures and scientific discussions	Oral 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 and monthly, oral or written exams, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Analytical Chemistry by Stook and West
Main references (sources)	Fundamentals of Analytical Chemistry by Stook and West
Recommended books and references (scientific journals, reports…)	1."Quantitative Chemical Analysis" by Daniel C. Harris3. 2. "Principles of Instrumental Analysis" by Douglas A. Skoog, F. James Holler, and Stanley R. Crouch4. 3. "Analytical Chemistry: A Modern Approach to Analytical Science" by Kellner, et al.
Electronic References, Websites	ChemGuide, (www.chemguide.co.uk)

Course Description

1. Course Name: Organic Chemistry I

2. Course Code: 1210

3. Semester / Year: 2nd semester/1st year

4. Description Preparation Date: 23/3/2024

5. Available Attendance Forms: first year students

6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units

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

Name: Lecturer. Dr. Ahlam Hussein Hassan
Email: ahlam.hussein@alkafeel.edu.iq

8. Course Objectives

Course Objectives	• Introducing the fundamental concepts of organic chemistry. • Understanding the structure, properties, and reactions of alkanes and methane. • Exploring the chemistry of alkenes and alkynes, including their synthesis and reactions. • Learning about dienes, their unique characteristics, and their role in organic reactions. • Grasping the principles of stereochemistry and its application in understanding molecular structures and reactions. • Studying alcohols and ethers, including their functional groups, properties, and reactions. • Examining alkyl halides, focusing on their preparation, reactivity, and role in organic synthesis. • Discussing cycloalkanes, their strain, conformations, and

	stability.

9. Teaching and Learning Strategies

Strategy	• Lectures • Classroom discussions and student participation in scientific discussion • Practical laboratory experiments • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understanding the chemistry of carbon, and the classification, properties and reactions of organic compounds.	Introduction.	Lectures and scientific discussions	Oral and written exams
2	3	Providing the student with the concept of alkanes Know the general formula and its own characteristics, interactions, and manufacturing methods	Alkanes	Lectures and scientific discussions	Oral and written exams
3	3	Knowing methane, its properties, uses, methods of preparation and reactions	Methane	Lectures and scientific discussions	Oral and written exams
4	3	Providing the student with the concept of alkenes	Alkenes I	Lectures and scientific discussions	Oral and written exams
5	3	Know the general formula has its own characteristics, interactions, and manufacturing methods	Alkenes II	Lectures and scientific discussions	Oral and written exams
6-7	5	Providing the student with the concept of alkynes Know the general formula has its own characteristics, interactions, and manufacturing methods What are dienes characteristics?	Alkynes and dienes.	Lectures and scientific discussions	Oral and written exams
8-10	8	Introduction to stereochemistry The importance of stereochemistry Study the effect of stereochemistry on	stereochemistry I & II	Lectures and scientific discussions	Oral and written exams

		chemical reactions In the pharmaceutical industry Understanding the structure of organic compounds and their special forms based on stereochemistry			
11	3	Providing the student with the concept of Alcohols Know the general formula has its own characteristics, interactions, and manufacturing methods	Alcohols	Lectures and scientific discussions	Oral and written exams
12	3	Providing the student with the concept of Ethers Know the general formula has its own characteristics, interactions, and manufacturing methods	Ethers	Lectures and scientific discussions	Oral and written exams
13-14	6	Providing the student with the concept of Alkyl halide Know the general formula has its own characteristics, interactions, and manufacturing methods	Alkyl halide	Lectures and scientific discussions	Oral and written exams
15	3	Providing the student with the concept of Cycloalkanes Know the general formula has its own characteristics, interactions, and manufacturing methods	Cycloalkanes	Lectures and scientific discussions	Oral 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 and monthly, oral 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…)	Books: 1. Organic Chemistry" by Clayden, Greeves, Warren, and Wothers1. "2. Advanced Organic Chemistry" by Francis A. Carey and Richard J. Sundberg2.

	3. Stereochemistry of Organic Compounds" by Ernest L. Eliel and Samuel H. Wilen1. 4. The Logic of Chemical Synthesis" by E.J. Corey and Xue-Min Cheng1. 5. Organometallics in Organic Synthesis" by various authors1. Journals: Journal of Organic Chemistry Organic Letters Tetrahedron Angewandte Chemie International Edition
Electronic References, Websites	- ChemGuide, (www.chemguide.co.uk)

Course Description Form

1. Course Name: Organic Chemistry II

2. Course Code: 211

3. Semester / Year: 1st semester/2nd year

4. Description Preparation Date: 23/3/2024

5. Available Attendance Forms: Second-year students

6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units

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

Name: Lecturer. Dr. Ali Jabbar Radhi
Email: alijebar56@alkafeel.edu.iq

8. Course Objectives

Course Objectives	• Recognize aromatic compounds from structural formulas. • Name aromatic compounds given formulas and vice versa. • Understand the concept of electrophilic aromatic substitution and its mechanisms. • Explore the properties and reactions of carboxylic acids. • Understand the acidity of carboxylic acids and factors affecting it. • Learn the synthesis and reactions of carboxylic acids. • Study the reactivity of carboxylic acid derivatives like esters, amides, anhydrides, and acyl chlorides. • Learn about the nucleophilic acyl substitution mechanism. • Understand the structure and classification of amines. • Explore the basicity of amines and their reactions. • Learn the properties and nomenclature of aldehydes and ketones. • Study the reactivity of the carbonyl group in various reactions including aldol and Claisen condensation. • Understand the importance of carbonyl chemistry in organic synthesis. • Explore the aromatic nature of phenols and their properties. • Understand the reactions specific to phenols due to the

	presence of the hydroxyl group.

9. Teaching and Learning Strategies

Strategy	• Lectures • Use a smart board • Classroom discussions and student participation in scientific discussi • Practical laboratory experiments • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	9	Knowing Aromatic hydrocarbons include benzene and its derivatives, nomenclature, electrophilic substitution reactions, substituting groups on the benzene ring, with knowledge of the effect of groups pushing and pulling electrons on the aromatic ring. Aromatic hydrocarbons.	Aromatic hydrocarbons	Lectures and scientific discussions	Oral and written exams
4-7	12	Understanding the basic structure of carboxylic acids and their derivatives, their nomenclature and properties (reactions and physical and chemical properties).	Carboxylic acids: properties and interactions, functional derivatives of carboxylic acids.	Lectures and scientific discussions	Oral and written exams
8-9	6	Understanding the basic structure of amines, their names, their physical and chemical properties, their interactions, and methods of preparing them.	Amines	Lectures and scientific discussions	Oral and written exams
10-13		Understanding the basic structure of aldehydes and ketones, their physical and chemical properties, their interactions, and	Aldehydes and ketones	Lectures and scientific discussions	Oral and written exams

		methods of preparing them. Study of Claisen condensation and some types of negative carbon ion reactions			
14-15	6	Understanding the basic structure of phenols, their properties, interactions, and methods of preparing them	Phenol	Lectures and scientific discussi	Oral a 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)	1. Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2. Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA.
Main references (sources)	1. Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2. Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA.
Recommended books and references (scientific journals, reports…)	Smith, Michael B.; March, Jerry (2007), Advanced Organic Chemistry: Reactions, Mechanisms, and Structure (6th ed.), New York: Wiley-Interscience, ISBN 978-0-471-72091-1
Electronic References, Websites	- ChemGuide, (www.chemguide.co.uk)

Course Description Form

1. Course Name: Organic Chemistry III

2. Course Code: 226

3. Semester / Year: 2nd semester/2nd year

4. Description Preparation Date: 23/3/2024

5. Available Attendance Forms: Second-year students

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: Lecturer. Dr. Ali Jabbar Radhi
Email: alijebar56@alkafeel.edu.iq

8. Course Objectives

Course Objectives	• **Understanding the classification and nomenclature of heterocyclic compounds.** • **Exploring the general structures, properties, and occurrences of heterocyclic systems in nature and medicinal products.** • **Studying the synthesis and reactions of five-membered ring heterocyclic compounds like pyrrole, furan, and thiophene.** • **Identifying the sources of pyrrole, furan, and thiophene.** • **Analyzing the electrophilic substitution in pyrrole, furan, and thiophene, including their reactivity and orientation.** • **Learning the structure and reactions of six-membered ring heterocyclic compounds, particularly pyridine.** • **Examining saturated five-membered heterocyclic compounds and their chemical behavior.** • **Investigating heterocyclic compounds with five and six-member rings that contain two and three heteroatoms, understanding their complexity and reactivity.**

9. Teaching and Learning Strategies

Strategy	• Lectures • Use a smart board

	• Classroom discussions and student participation in scient discussion • Practical laboratory experiments • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	9	Knowing Heterocyclic compounds and Nomenclature and classification systems	Heterocyclic compounds	Lectures and scientific discussions	Oral and written exams
4-7	8	Knowing types of heterocyclic compounds, Heterocyclic Five-membered compounds, their interactions, methods of preparation, and study of their physical and chemical properties, electrophilic interactions	Heterocyclic rings Five-membered ring furan, Pyrrole and Thiophene	Lectures and scientific discussions	Oral and written exams
8	2	Knowing Saturated Five-membered ring. Study its Physical and chemical properties	Saturated Five-membered ring	Lectures and scientific discussions	Oral and written exams
9-11	6	Knowing types of six-membered ring compounds, their interactions, methods of preparation, and study Its physical and chemical properties, electrophilic interactions	Heterocyclic six-membered ring, pyridine	Lectures and scientific discussions	Oral and written exams
12-13	6	Knowing types of heterocyclic compounds that contain more than one heterogeneous atom and study their physical and chemical properties	Types of heterocyclic compounds that contain more than one atom Heterogeneous	Lectures and scientific discussions	Oral and written exams
14-15	6	Knowing types of fused heterocyclic compounds, their reactions, methods of preparation, study of	Types of fused heterocyclic compounds, indole and Quinoline	Lectures and scientific discussions	Oral and written exams

		their physical and chemical properties, electrophilic reactions			

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. Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2. Organic Chemistry by J. McMurry, latest e Thomason learning, CA, USA
Main references (sources)	1. Organic Chemistry by Robert T. Morrison and Robert N. Boyed, latest edition. 2. Organic Chemistry by J. McMurry, latest ed., Thomason learning, CA, USA
Recommended books and references (scientific journals, reports…)	Heterocyclic compound – Nucleophilic, Ring Closure | Britannica
Electronic References, Websites	Heterocyclic Chemistry (msu.edu)

Course Description Form

1. Course Name: Inorganic Pharmaceutical Chemistry

2. Course Code: 311

3. Semester / Year: 1st semester/3rd year

4. Description Preparation Date: 23/3/2024

5. Available Attendance Forms: Third year students

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: Prof. Dr. Dhurgham Qasim Shaheed
Email: dhurgham.alkhefaji@alkafeel.edu.iq

8. Course Objectives

Course Objectives	• Understand the chemical properties of inorganic elements relevant to pharmacy. • Study of chemical reactions and compounds related to inorganic elements. • Identify the applications of these compounds in the field of pharmacy and health. • Understanding the chemical foundations of the preparation and analysis of inorganic compounds in pharmacy. • Analysis of the pharmaceutical effect and chemical balance of inorganic elements in pharmaceutical preparations

9. Teaching and Learning Strategies

Strategy	• Lectures • Laboratory practical experiments • Scientific discussions and seminars • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	5	- Understand the fundamental principles of atomic structure and its relevance to complexation in pharmaceutical compounds. - Analyze the molecular structures of complex compounds used in pharmaceutical applications. - Apply knowledge of complexation in drug formulation and design.	Atomic and molecular structure/ Complexation	Lectures and scientific disscusions	Oral and written exams
3	1	- Identify and describe the major intra and extracellular electrolytes in biological systems. - Explain the physiological roles of these electrolytes in cellular functions. - Understand the implications of electrolyte imbalances on health.	Major intra and extra cellular electrolytes.	Lectures and scientific disscusions	Oral and written exams
4	1	- Recognize and categorize major physiological ions in the human body. - Explain the functions	Major physiological ions.	Lectures and scientific disscusions	Oral and written exams

		and regulatory roles of these ions in maintaining physiological balance. - Relate physiological ion concentrations to cellular and systemic homeostasis.			
4	1	- Identify electrolytes commonly used in replacement therapy. - Understand the indications and mechanisms of action of electrolyte replacement in clinical settings. - Evaluate the impact of electrolyte replacement on patient health.	Electrolytes used for replacement therapy.	Lectures and scientific disscusions	Oral and written exams
5	1	- Explain the role of electrolytes in maintaining acid-base balance. - Analyze the mechanisms by which electrolytes contribute to acid-base regulation. - Understand the clinical applications of electrolytes in managing acid-base disorders.	Electrolytes used in acid-base balance.	Lectures and scientific disscusions	Oral and written exams
5	- 1	- Describe the normal physiological acid-base balance in the human body. - Analyze the compensatory mechanisms involved in maintaining acid-base equilibrium. - Evaluate disruptions in acid-base balance and their clinical implications.	- Physiological acid-base balance.	- Lectures and scientific disscusions	- Oral and written exams

6-7	3	- Identify essential and trace ions such as iron, copper, sulfur, and iodine. - Understand the biological functions of these ions and their roles in human health. - Evaluate the significance of deficiencies or excesses of essential and trace ions.	Essential and trace ions: Iron, copper, sulfur, iodine.	Lectures and scientific disscusions	Oral and written exams
7-8	3	- Recognize non-essential ions, including fluoride, bromide, lithium, gold, silver, and mercury. - Understand the potential toxicity and therapeutic uses of non-essential ions. - Analyze the impact of exposure to non-essential ions on human health.	Non essential ions: Fluoride, bromide, lithium, gold, silver and mercury.	Lectures and scientific disscusions	Oral and written exams
9	1	- Identify different classes of gastrointestinal agents. - Understand the mechanisms of action of gastrointestinal agents in the digestive system. - Evaluate the therapeutic uses and potential side effects of gastrointestinal agents.	Gastrointestinal agents.	Lectures and scientific disscusions	Oral and written exams
9	1	- Recognize acidifying agents used in pharmaceutical applications. - Understand the mechanisms by which acidifying agents alter acidity. - Evaluate the role of acidifying agents in drug	Acidifying agents.	Lectures and scientific disscusions	Oral and written exams

		formulations.			
10	2	- Identify and classify antacids used in pharmaceuticals. - Understand the mechanisms of action of antacids in neutralizing gastric acidity. - Evaluate the clinical applications and limitations of antacids.	Antacids.	Lectures and scientific disscusions	Oral and written exams
11	1	- Describe the characteristics and mechanisms of protective adsorbents. - Understand how protective adsorbents function to protect the gastrointestinal mucosa. - Evaluate the therapeutic uses of protective adsorbents in pharmaceuticals.	Protective adsorbents.	Lectures and scientific disscusions	Oral and written exams
11-12	3	- Understand the principles of radiopharmaceutical preparations. - Identify the key components involved in formulating radiopharmaceuticals. - Analyze the applications and safety considerations associated with radiopharmaceuticals.	Radiopharmaceutical preparations.		
13-15	6	- Identify radioopaque and contrast media used in medical imaging. - Understand the mechanisms by which these agents enhance imaging contrast. - Evaluate the clinical applications and	Radio opaque and contrast media.		

		potential risks associated with radioopaque and contrast media.			

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, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Inorganic Medicinal and Pharmaceutical Chemistry by Block, Roche Soine and Wilson. 2. Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry.
Main references (sources)	1. Inorganic Medicinal and Pharmaceutical Chemistry by Block, Roche Soine and Wilson. Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry.
Recommended books and references (scientific journals, reports…)	1. "Inorganic Medicinal and Pharmaceutical Chemistry" by G. S. Deepa and R. L. Deepa: 2. "Inorganic Chemistry" by Gary L. Miessler, Paul J. Fischer, and Donald A. Tarr: 3. "Pharmaceutical Inorganic Chemistry" by J. D. R. Thomas: 4. "Descriptive Inorganic Chemistry" by Geoff Rayner-Canham and Tina Overton: 5. "Inorganic Chemistry" by Catherine Housecroft and Alan G. Sharpe 6. "Inorganic Chemistry" by J Derek Woollins: 7. "Inorganic Chemistry" by James E. Huheey, Ellen A. Keiter, and Richard L. Keiter:
Electronic References, Websites	Pharmacy Times: American Chemical Society (ACS) PubMed: ScienceDirect:

Course Description Form

1. Course Name: Organic Pharmaceutical Chemistry I

2. Course Code: 326

3. Semester / Year: 2nd semester/3rd year

4. Description Preparation Date: 23/3/2024

5. Available Attendance Forms: Third year students

6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units

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

Name: Prof. Dr. Dhurgham Qasim Shaheed
Email: dhurgham.alkhefaji@alkafeel.edu.iq

8. Course Objectives

Course Objectives	• Understand the fundamental concepts of organic chemistry as they apply to pharmaceuticals. • Develop the ability to apply these concepts to the design and synthesis of drug molecules. • Learn to use computational tools to predict and analyze the pharmacological properties of compounds. • Acquire knowledge of the physicochemical properties that affect drug behavior and efficacy.

	• Explore the principles of drug distribution, metabolism, and the interaction with biological targets. • Gain insights into the latest methodologies and technologies in drug discovery and design.

9. Teaching and Learning Strategies

Strategy	• Lectures • Laboratory practical experiments • Scientific discussions and seminars • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	• Understand the processes and factors affecting the distribution of drugs within the body. • Analyze the impact of drug distribution on pharmacokinetics and pharmacodynamics	Drug Distribution	Lectures and scientific disscusions	Oral and written exams
2	3	• Comprehend the acid-base properties of drugs and how they affect drug solubility and absorption. • Apply knowledge of acid-base chemistry to predict the behavior of drugs in different physiological environments	Acid-Base Properties:	Lectures and scientific disscusions	Oral and written exams
3	3	• Learn to use computer-aided design (CADD) tools to statistically predict the pharmacological activity of new drug candidates.	Computer-Aided Drug Design: Statistical Prediction of Pharmacological Activity	Lectures and scientific disscusions	Oral and written exams

		• Understand the role of CADD in drug discovery and the physicochemical properties involved in QSAR			
4	3	• Grasp the concept of the partition coefficient and its significance in drug design. • Study the relationship between partition coefficient and drug lipophilicity/hydro-philicity	Partition Coefficient:	Lectures and scientific disscusions	Oral and written exams
5	3	• Explore advanced methods in CADD, including molecular and quantum mechanics. • Gain proficiency in using molecular modeling software to design new drug molecules	Computer-Aided Drug Design: Newer Methods	Lectures and scientific disscusions	Oral and written exams
6	3	• Understand the various forces that influence drug-receptor interactions, including ionic bonds, hydrogen bonds, and hydrophobic interactions. • Analyze the role of these forces in the efficacy and specificity of drug action	Forces involved with drug–receptor interactions	Lectures and scientific disscusions	Oral and written exams
7	3	• Recognize the importance of steric factors in drug-receptor interactions and drug design. • Evaluate how the three-dimensional shape of a drug molecule affects its biological activity	Steric features of drugs	Lectures and scientific disscusions	Oral and written exams
8	3	• Understand the significance of conformational flexibility in drug action. • Discuss how a drug's ability to adopt multiple	Conformational flexibility and multiple modes of action	Lectures and scientific disscusions	Oral and written exams

		conformations can lead to various modes of action			
9	3	• Comprehend the concept of optical isomerism and its impact on drug activity. • Study the differences in biological activity between enantiomers and the concept of racemic mixtures	Optical isomerism and biological activity	Lectures and scientific disscusions	Oral and written exams
10	3	• Develop skills in database searching and mining relevant to pharmacy education and research. • Learn to optimize database searches to identify literature and data pertinent to pharmacy practice	Database searching and mining	Lectures and scientific disscusions	Oral and written exams
11	3	• Understand the concept of isosterism and its application in drug design. • Analyze the effects of isosteric replacement on the pharmacological properties of drugs.	Isosterism	Lectures and scientific disscusions	Oral and written exams
12-15	12	• Identify the major sites of drug metabolism in the body. • Explore the general pathways of drug biotransformation and their implications for drug efficacy and toxicity.	General pathways of drug metabolism: Sites of drug biotransforma-tion.	Lectures and scientific disscusions	Oral 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 and monthly, oral 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.

Main references (sources)	1. Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry. 2. "Introduction to Medicinal Chemistry" by Patrick
Recommended books and references (scientific journals, reports…)	1. "Pharmaceutical Chemistry" by Jill Barber and Chris Rostron: 2. "Medicinal Chemistry: The Modern Drug Discovery Process" by Erland Stevens and William W. Fleming
Electronic References, Websites	- **ChemGuide, (www.chemguide.co.uk)** - **Pharmaceuticals - MDPI:** This journal section on Medicinal Chemistry publishes updated reviews and research articles covering all aspects of small molecules as drug candidates1. - **Medicinal Chemistry Research - Springer:** A journal that provides prompt publication of experimental achievements in drug design, discovery, and mechanisms of action of biologically active compounds. - **ASHP:** Offers resources that help understand the basic concepts in medicinal chemistry. - **The Handbook of Medicinal Chemistry:** Provides a comprehensive overview of the field and insight into the latest trends and research. - **PharMSkooL:** Lists top apps and websites for pharmacy students, which can be a useful resource for anyone studying or working in the field.

Course Description Form

1. Course Name: Organic Pharmaceutical Chemistry II
2. Course Code: 412
3. Semester / Year: 1st semester/4th year
4. Description Preparation Date: 23/3/2024
5. Available Attendance Forms: fourth year students
6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units
7. Course administrator's name (mention all, if more than one name)
Name: Prof. Dr. Dhurgham Qasim Shaheed Email: dhurgham.alkhefaji@alkafeel.edu.iq
8. Course Objectives

Course Objectives	• Understanding Drug–Receptor Interactions: Students should learn about cholinergic agents and receptors, their subtypes, and how drugs can mimic or block the action of neurotransmitters at these sites. • Structure–Activity Relationships (SAR): The course will likely cover the principles of SAR, which is the relationship between the chemical structure of a compound and its biological activity. This includes studying the stereochemistry of cholinergic agonists, analgesic agents, and adrenergic agents. • Synthesis and Design of Drugs: Students should expect to learn how to synthesize cholinergic blocking agents, analgesics, and adrenergic drugs, and understand the rationale behind the design of these molecules.

	• Mechanisms of Drug Action: The course should explain the mechanisms by which drugs act, including how cholinesterase inhibitors work and how adrenergic drugs affect neurotransmission. • Pharmacodynamics and Pharmacokinetics: Understanding the dynamics of drug action (pharmacodynamics) and the movement of drugs within the body (pharmacokinetics) is crucial for any pharmaceutical chemistry course. • Therapeutic Applications: Students will learn about the therapeutic uses of different classes of drugs, such as CNS depressants, antipsychotics, and anticonvulsants, and how they are used to treat various conditions. • Drug Development and Evaluation: The course may also cover the process of drug development, including the discovery, testing, and regulatory approval of new pharmaceutical agents.

9. Teaching and Learning Strategies

Strategy	• Lectures • Laboratory practical experiments • Scientific discussions and seminars • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	understanding: 1. **Cholinergic Agents:** • Mechanisms of action of cholinergic drugs. • Classification of cholinergic agents (agonists) and their therapeutic uses. 2. **Cholinergic Receptors:**	Cholinergic agents, cholinergic receptors and their subtypes.	Lectures and scientific disscusions	Oral and written exams

		• Identification and classification of cholinergic receptors (nicotinic and muscarinic). • Locations of cholinergic receptors in the nervous system. • Physiological functions regulated by cholinergic receptors. 3. **Cholinergic Receptor Subtypes:** • Differentiation between subtypes of muscarinic receptors (e.g., M1, M2, M3). • Roles and effects associated with each muscarinic receptor subtype. • Clinical implications and significance of targeting specific receptor subtypes. 4. **Interaction with the Nervous System:** • Integration of cholinergic transmission in the autonomic nervous system. • Regulation of neurotransmitter release and synaptic transmission. • Modulation of cholinergic activity in different physiological and pathological conditions.			
2-3	5	1. **Cholinergic Agonists in Pharmaceutical Chemistry:** • Understanding the chemical structures of cholinergic agonists. • Exploring the stereochemical features that influence their pharmacological activity. • Analyzing the synthesis and chemical modifications of cholinergic agonists. • Correlating the chemical structure with the receptor binding and therapeutic effects. 2. **Stereochemistry and Structure-Activity Relationships (SAR) in Pharmaceutical Chemistry:** • Grasping the significance of	Cholinergic agonists; stereochemistry and structure-activity relationships (SAR); products; cholinesterase inhibitors.	Lectures and scientific disscusions	Oral and written exams

		stereochemistry in pharmaceutical compounds. • Investigating the SAR principles in the design of cholinergic agonists. • Relating the chemical structure to the pharmacological and therapeutic properties. • Applying SAR concepts to predict the activity of novel cholinergic compounds. 3. **Products in Pharmaceutical Chemistry:** • Recognizing the chemical structures of commercially available cholinergic agonist drugs. • Understanding the pharmaceutical formulations, excipients, and drug delivery aspects. • Analyzing the chemical composition of different brand and generic products. • Evaluating the pharmaceutical considerations in the development of cholinergic agonist formulations. 4. **Cholinesterase Inhibitors in Pharmaceutical Chemistry:** • Understanding the chemical mechanisms of cholinesterase inhibition. • Investigating the structural features influencing the interaction with cholinesterase enzymes. • Exploring the chemical synthesis and modifications of cholinesterase inhibitors. • Analyzing the chemical basis of therapeutic effects and potential side effects. 5. **Pharmacokinetics and Pharmacodynamics in Pharmaceutical Chemistry:** • Understanding the chemical aspects of absorption, distribution,			

		metabolism, and elimination of cholinergic agents. • Analyzing the chemical basis of pharmacological effects and the time course of drug action. • Relating pharmaceutical chemistry to factors influencing the pharmacokinetics and pharmacodynamics of these agents.			
3-5	7	1. **Cholinergic Blocking Agents:** • Understanding the chemical structures of cholinergic blocking agents. • Exploring the mechanisms of action through cholinergic receptor antagonism. • Analyzing the structural features influencing the affinity and selectivity of cholinergic blockers. • Correlating the chemical structure with pharmacokinetic and pharmacodynamic properties. 2. **Structure-Activity Relationships (SAR) in Pharmaceutical Chemistry:** • Grasping the principles of SAR in the design of cholinergic blocking agents. • Investigating the structural features influencing the receptor binding and pharmacological effects. • Applying SAR concepts to predict the activity and selectivity of novel cholinergic blockers. • Analyzing the relationship between chemical modifications and SAR. 3. **Solanaceous Alkaloids and Analogues:** • Identifying solanaceous alkaloids with cholinergic blocking properties. • Understanding the chemical	Cholinergic blocking agent; structure-activity relationships (SAR); Solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents).	Lectures and scientific disscusions	Oral and written exams

		structures of natural alkaloids and their analogues. • Analyzing the pharmacological effects and therapeutic uses of solanaceous alkaloids. • Exploring the potential for modifying alkaloid structures to enhance pharmacological activity. 4. **Synthetic Cholinergic Blocking Agents and Products:** • Investigating the synthesis and chemical modifications of synthetic cholinergic blocking agents. • Understanding the pharmaceutical formulations and properties of cholinergic blockers. • Analyzing the chemical basis of adverse effects and potential complications. • Evaluating the pharmaceutical considerations in the development of cholinergic blocking agent formulations. 5. **Ganglionic Blocking Agents (Neuromuscular Blocking Agents):** • Understanding the chemical structures and mechanisms of ganglionic blocking agents. • Analyzing the SAR principles in the design of neuromuscular blocking agents. • Exploring the chemical modifications and analogues of ganglionic blockers. • Understanding the pharmacological effects and clinical applications of neuromuscular blocking agents.			
6	3	1. **Analgesic Agents:** • Understanding the general mechanisms of action of analgesic agents.	Analgesic agents (SAR of morphine, SAR of meperidine type molecules;	Lectures and scientific disscusions	Oral and written exams

		• Grasping the different classes of analgesics and their therapeutic applications. • Analyzing the pharmacokinetic and pharmacodynamic properties of analgesic drugs. 2. **Structure-Activity Relationships (SAR) of Morphine:** • Investigating the chemical structure of morphine and its derivatives. • Understanding SAR principles in the context of morphine-like analgesics. • Analyzing the structural features influencing potency, efficacy, and side effects. • Correlating chemical modifications with changes in pharmacological activity. 3. **Structure-Activity Relationships (SAR) of Meperidine Type Molecules:** • Exploring the chemical structure of meperidine and related molecules. • Understanding SAR principles specific to the meperidine-type analgesics. • Analyzing the impact of structural modifications on the pharmacological profile. 4. **Structure-Activity Relationships (SAR) of Methadone Type Compounds:** • Investigating the chemical structure of methadone and its analogues. • Understanding SAR principles applicable to methadone-type analgesics. • Analyzing the structural features influencing analgesic efficacy and safety. 5. **N-Methylbenzomorphans:**	SAR of methadone type compounds; N-methylbezomorphans, antagonist type analgesics in benzomorphans).		

		• Understanding the chemical structures of N-methylbenzomorphans. • Analyzing SAR principles for this class of analgesics. • Exploring the pharmacological effects and therapeutic uses of N-methylbenzomorphans. 6. **Antagonist Type Analgesics in Benzomorphans:** • Identifying benzomorphans with antagonist properties. • Understanding the chemical structures of antagonist-type analgesics. • Analyzing SAR principles specific to the antagonist class. • Exploring the therapeutic applications and limitations of antagonist-type analgesics.			
7-9	7	• **Analgesic Receptors and Endogenous Opioids:** • Understanding the different types of analgesic receptors in the central nervous system. • Grasping the concept of endogenous opioids and their role in pain modulation. • Analyzing the interaction between analgesic receptors and endogenous opioids. • Correlating receptor activation with the analgesic effects and physiological responses. • **Products in Analgesic Therapy:** • Recognizing and understanding the chemical structures of commonly used analgesic products. • Identifying brand and generic names, dosage forms, and routes of administration. • Analyzing pharmaceutical	Analgesic receptors, endogenous opioids; Products; Antitusive agents; Anti-inflammatory analgesics.	Lectures and scientific disscusions	Oral and written exams

		formulations, excipients, and variations in product formulations. • **Antitussive Agents:** • Understanding the mechanisms of action of antitussive agents. • Grasping the classification of antitussive drugs and their therapeutic uses. • Analyzing the chemical structures of common antitussive agents. • Evaluating the efficacy, safety, and potential side effects of antitussive medications. • **Anti-Inflammatory Analgesics:** • Understanding the mechanisms of action of anti-inflammatory analgesics. • Grasping the classification of nonsteroidal anti-inflammatory drugs (NSAIDs) and their derivatives. • Analyzing the chemical structures of common anti-inflammatory analgesics. • Evaluating the pharmacokinetics, pharmacodynamics, and adverse effects associated with anti-inflammatory analgesics.			
10-12	11	1. **Adrenergic Agents (Adrenergic Neurotransmitters):** • Understanding the role of adrenergic neurotransmitters in the sympathetic nervous system. • Grasping the synthesis, release, and metabolism of adrenergic neurotransmitters (e.g., norepinephrine, epinephrine). • Analyzing the physiological effects of adrenergic neurotransmitters on target tissues. 2. **Adrenergic Receptors:** • Identifying and classifying	Adrenergic agents (Adrenergic neurotransmitters); Adrenergic receptors; Drugs affecting Adrenergic neurotransmission; Sympathomimetic agents; Adrenergic receptor antagonists.	Lectures and scientific disscusions	Oral and written exams

		adrenergic receptors (alpha and beta receptors). • Understanding the distribution of adrenergic receptors in different tissues. • Analyzing the signal transduction pathways activated by adrenergic receptor activation. 3. **Drugs Affecting Adrenergic Neurotransmission:** • Understanding the mechanisms of action of drugs that modulate adrenergic neurotransmission. • Grasping the classification and therapeutic uses of adrenergic drugs (agonists and antagonists). • Analyzing the pharmacokinetics and pharmacodynamics of drugs affecting adrenergic neurotransmission. 4. **Sympathomimetic Agents:** • Identifying and classifying sympathomimetic agents (direct and indirect acting). • Understanding the chemical structures and mechanisms of action of sympathomimetics. • Analyzing the therapeutic applications and potential side effects of sympathomimetic drugs. 5. **Adrenergic Receptor Antagonists:** • Identifying and classifying adrenergic receptor antagonists (alpha and beta blockers). • Understanding the mechanisms of action and selectivity of adrenergic receptor antagonists. • Analyzing the therapeutic uses and potential side effects of adrenergic receptor antagonists. 6. **Pharmacological Considerations:** • Understanding the overall pharmacology of adrenergic			

		agents. • Analyzing the interplay between adrenergic and cholinergic systems. Evaluating the clinical relevance and applications of adrenergic drugs in various medical conditions.			
13-15	9	• CNS Depressants: • Understanding the general mechanisms of action of CNS depressant drugs. • Grasping the classification and therapeutic uses of CNS depressants. • Analyzing the pharmacokinetic and pharmacodynamic properties of these drugs. • Benzodiazepines and Related Compounds: • Identifying the chemical structures of benzodiazepines and related compounds. • Understanding the mechanisms of action and pharmacological effects of benzodiazepines. • Analyzing the therapeutic applications, including anxiolytic and sedative effects. • Evaluating the pharmacokinetics and potential adverse effects of benzodiazepines. • Barbiturates: • Understanding the chemical structures of barbiturates. • Analyzing the mechanisms of action and pharmacological effects of barbiturates. • Grasping the therapeutic uses, including sedation and anticonvulsant properties. • Evaluating the pharmacokinetics and potential complications associated with barbiturates. • CNS Depressants with Skeletal	CNS depressant; Benzodiazepines and related compounds; Barbiturates; CNS depressant with skeletal muscle relaxant properties; Antipsycotics; Anticonvulsants.	Lectures and scientific disscusions	Oral and written exams

		Muscle Relaxant Properties: • Identifying compounds with both CNS depressant and skeletal muscle relaxant properties. • Understanding the synergistic effects of these compounds in clinical applications. • Analyzing the therapeutic uses and potential side effects of such combination drugs. • Antipsychotics: • Identifying the chemical structures of antipsychotic drugs. • Understanding the mechanisms of action and receptor interactions of antipsychotics. • Analyzing the therapeutic applications in the treatment of psychiatric disorders. • Evaluating the pharmacokinetics and potential side effects of antipsychotic medications. • Anticonvulsants: • Understanding the mechanisms of action of anticonvulsant drugs. • Identifying the chemical structures of common anticonvulsants. • Analyzing the therapeutic uses in the management of seizures and epilepsy. • Evaluating the pharmacokinetics and potential adverse effects of anticonvulsant medications.			

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, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry.
Main references (sources)	1. Wilson and Gisvold Textbook of Organic Medicinal and

	Pharmaceutical Chemistry. 2. "Introduction to Medicinal Chemistry" by Patrick
Recommended books and references (scientific journals, reports…)	1. "Pharmaceutical Chemistry" by Jill Barber and Chris Rostron: 2. "Medicinal Chemistry: The Modern Drug Discovery Process" by Erland Stevens and William W. Fleming
Electronic References, Websites	- **ChemGuide, (www.chemguide.co.uk)** - **Pharmaceuticals - MDPI:** This journal section on Medicinal Chemistry publishes updated reviews and research articles covering all aspects of small molecules as drug candidates1. - **Medicinal Chemistry Research - Springer:** A journal that provides prompt publication of experimental achievements in drug design, discovery, and mechanisms of action of biologically active compounds. - **ASHP:** Offers resources that help understand the basic concepts in medicinal chemistry. - **The Handbook of Medicinal Chemistry:** Provides a comprehensive overview of the field and insight into the latest trends and research. - **PharMSkooL:** Lists top apps and websites for pharmacy students, which can be a useful resource for anyone studying or working in the field.

Course Description Form

1. Course Name: Organic Pharmaceutical Chemistry III

2. Course Code: 427

3. Semester / Year: 2nd semester/4th year

4. Description Preparation Date: 23/3/2024

5. Available Attendance Forms: fourth year students

6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units

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

Name: Prof. Dr. Dhurgham Qasim Shaheed
Email: dhurgham.alkhefaji@alkafeel.edu.iq

8. Course Objectives

Course Objectives	• Understanding Antibiotics: Learning about the chemistry, mechanism of action, and clinical use of β-Lactam antibiotics like Penicillins, as well as the role of β-Lactamase inhibitors in combating resistance. • Exploring Antimicrobial Agents: Studying the structure, function, and resistance of various antimicrobial agents including Cephalosporins, Monobactams, Aminoglycosides, Chloramphenicol, Tetracyclines, Macrolides, Lincomycins, and Polypeptides. • Viral Infections and Treatments: Gaining insights into the properties of viruses, viral classification, and the pharmacology of antiviral agents. • Sulfonamides and Sulfones: Understanding the chemistry, nomenclature, mechanisms of action, resistance, toxicity,

	side effects, metabolism, protein binding, distribution, and structure–activity relationships (SAR) of Sulfonamides and Sulfones. • Cancer Therapeutics: Learning about the various classes of anti–neoplastic agents, including Alkylating agents, Antimetabolites, Antibiotics, Plant products, and other miscellaneous compounds. • Endocrinology and Hormones: Studying hormones and related compounds, including their synthesis, mechanism of action, and therapeutic applications.

9. Teaching and Learning Strategies

Strategy	• Lectures • Laboratory practical experiments • Scientific discussions and seminars • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	9	• To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of β-lactam antibiotics. • To explain the role of β-lactamase inhibitors in enhancing the efficacy of β-lactam antibiotics and their combination products. • To compare and contrast the chemical and biological properties of different generations of cephalosporins and monobactams12. • To apply the principles of structure-activity relationship and medicinal chemistry in designing new β-lactam antibiotics and β-lactamase	β-Lactam antibiotics (Penicillins); β-Lactamase inhibitors; Cephalosporins and Monobactams.	Lectures and scientific disscusions	Oral and written exams

		inhibitors			
4-6	9	• To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of aminoglycosides, chloramphenicol, tetracyclines, macrolides, lincomycins and polypeptides. • To explain the mode of action and resistance mechanisms of these antibiotics at the molecular level and their effects on protein synthesis. • To apply the principles of structure-activity relationship and medicinal chemistry in designing new analogues of these antibiotics with improved properties. • To understand the basic properties of viruses, their classification, replication cycle, and targets for antiviral therapy. • To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of antiviral agents for different viral infections. • To apply the principles of structure-activity relationship and medicinal chemistry in designing new antiviral agents with novel mechanisms of action	Aminoglycosides and Chloramphenicol; Tetracylines; Macrolides; Lincomycins and Polypeptides; Antiviral agents (properties of viruses, viral classification, products).	Lectures and scientific disscusions	Oral and written exams
7-9	9	• To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of sulfonamides and sulfones. • To explain the mode of action and resistance mechanisms of these agents at the molecular level and their effects on folic acid synthesis.	Sulfonamides (chemistry, nomenclature, mechanism of action, resistance, toxicity, side effects, metabolism, protein binding, distribution and SAR); products; Sulfones.	Lectures and scientific disscusions	Oral and written exams

		• To understand the physicochemical and pharmacokinetic properties of sulfonamides and sulfones, such as acidity, solubility, protein binding, distribution, metabolism, and excretion. • To apply the principles of structure-activity relationship and medicinal chemistry in designing new sulfonamides and sulfones with improved properties			
10-12	9	• To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of anti-neoplastic agents belonging to different classes. • To explain the mode of action and resistance mechanisms of these agents at the molecular level and their effects on DNA synthesis, repair, and function. • To understand the pharmacokinetic and pharmacodynamic properties of anti-neoplastic agents, such as absorption, distribution, metabolism, excretion, and drug interactions. • To apply the principles of structure-activity relationship and medicinal chemistry in designing new anti-neoplastic agents with novel mechanisms of action and reduced toxicity	Anti-neoplastic agents: Alkylating agents; Antimetabolites; Antibiotics; Plant products; Miscellaneous compounds.	Lectures and scientific disscusions	Oral and written exams
13-15	9	• To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of hormones and related compounds as anti-neoplastic agents. • To explain the mode of action and resistance mechanisms of these agents at the molecular level and their effects on hormone receptors and signal	Hormones and related compounds; Future anti-neoplastic agents; Monoclonal antibodies; Gene therapy of cancer.	Lectures and scientific disscusions	Oral and written exams

		transduction pathways. • To understand the pharmacokinetic and pharmacodynamic properties of hormones and related compounds, such as absorption, distribution, metabolism, excretion, and drug interactions. • To apply the principles of structure-activity relationship and medicinal chemistry in designing new hormones and related compounds with improved properties. • To understand the concept and applications of future anti-neoplastic agents, such as targeted therapy, immunotherapy, gene therapy, and nanomedicine. • To understand the structure, nomenclature, classification, synthesis, mechanism of action, spectrum of activity, resistance, adverse effects, and clinical uses of monoclonal antibodies as anti-neoplastic agents. • To understand the concept and applications of gene therapy of cancer, such as gene delivery, gene editing, and gene expression			

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, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry.
Main references (sources)	1. Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry. 2. "Introduction to Medicinal Chemistry" by Patrick
Recommended books and references (scientific journals,	1. "Pharmaceutical Chemistry" by Jill Barber and Chris Rostron: 2. "Medicinal Chemistry: The Modern

reports…)	Drug Discovery Process" by Erland Stevens and William W. Fleming
Electronic References, Websites	- **ChemGuide, (www.chemguide.co.uk)** - **Pharmaceuticals - MDPI:** This journal section on Medicinal Chemistry publishes updated reviews and research articles covering all aspects of small molecules as drug candidates1. - **Medicinal Chemistry Research - Springer:** A journal that provides prompt publication of experimental achievements in drug design, discovery, and mechanisms of action of biologically active compounds. - **ASHP:** Offers resources that help understand the basic concepts in medicinal chemistry. - **The Handbook of Medicinal Chemistry:** Provides a comprehensive overview of the field and insight into the latest trends and research. - **PharMSkooL:** Lists top apps and websites for pharmacy students, which can be a useful resource for anyone studying or working in the field.

Course Description Form

1. Course Name: Organic Pharmaceutical Chemistry IV
2. Course Code: 511
3. Semester / Year: 1st semester/5th year
4. Description Preparation Date: 23/3/2024
5. Available Attendance Forms: fifth year students
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: Assist. Prof. Dr. Ammar Abdulazeez Abdulsahib Email:
8. Course Objectives

Course Objectives	• To understand the basic concepts of prodrugs, including their design, the types of covalent bonds used for cleavable linkages, and the various types of prodrugs based on functional groups. • To explore the design and function of chemical delivery systems, including polymeric prodrugs, the structure and types of polymers used, and the role of cross-linking reagents in drug delivery. • To learn the principles of drug targeting, including how drugs are directed to specific sites of action within the body to increase efficacy and reduce side effects. • To gain knowledge in combinatorial chemistry techniques for the rapid synthesis of a large number of different but structurally related molecules and to understand the use of

	peptides, linkers, and support structures in the creation of drug-like molecules. • To become familiar with high-throughput screening, virtual screening, and the encoding of combinatorial libraries, which are essential for identifying potential drug candidates from large libraries of compounds. • To apply the theoretical knowledge gained in practical settings, likely involving the design and synthesis of a novel compound or the analysis of a chemical delivery system. • To understand the importance of chemical diversity in drug discovery and how to design libraries of compounds that maximize the chances of finding a successful drug candidate.

9. Teaching and Learning Strategies

Strategy	• Lectures • Laboratory practical experiments • Scientific discussions and seminars • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	6	• Understand the definition and purpose of prodrugs. Recognize the role of prodrugs in improving drug properties like solubility and stability. • Comprehend the types of cleavable covalent bonds used in prodrugs. Analyze how these bonds affect the activation and release of the drug.	Basic concept of prodrugs; Covalent bonds (cleavable); Prodrugs of functional groups; Types of prodrugs.	Lectures and scientific disscusions	Oral and written exams

		• Identify the functional groups commonly used in prodrug design. Evaluate the impact of these groups on drug delivery and activation. • Distinguish between different types of prodrugs and their applications. Assess the advantages and limitations of each type.			
4-6	6	• Understand the principles of chemical delivery systems. Explore the use of prodrugs in targeted drug delivery. • Learn about the design and function of polymeric prodrugs. Examine the role of polymers in drug formulation and release. • Identify various types of polymers used in drug delivery. Understand the structural characteristics that influence drug release. • Understand the role of cross-linking reagents in polymer-based drug delivery systems. Analyze how cross-linking affects the physical properties of the drug delivery system.	Chemical delivery systems; Polymeric prodrugs; Types and structure of polymers; Cross-linking reagents.	Lectures and scientific disscusions	Oral and written exams
7-8	4	• Learn the strategies for targeted drug delivery. Evaluate methods for directing drugs to specific tissues or cells.	Drug targeting.	Lectures and scientific disscusions	Oral and written exams
8-9	4	• Apply theoretical knowledge to a practical project, potentially involving the design or analysis of a drug delivery system.	Project	Lectures and scientific disscusions	Oral and written exams
10-12	5	• Understand the basics of combinatorial chemistry. Explore the synthesis of	Combinatorial chemistry; Peptides and	Lectures and scientific	Oral and written exams

		diverse chemical libraries. • Learn about the role of peptides and linear structures in drug design. Understand the synthesis and application of these structures in pharmaceuticals. • Comprehend the characteristics that define drug-like molecules. Explore the design principles for creating molecules with desirable drug properties. • Understand the use of supports and linkers in combinatorial chemistry. Evaluate the impact of different supports and linkers on the properties of synthesized molecules. • Learn the techniques and advantages of solution-phase combinatorial chemistry. Understand the challenges and solutions associated with this approach.	other linear structures; Drug like molecules; Support and linker; Solution-phase combinatorial chemistry.	disscusions	
13-15	5	• Understand the methods for detecting and purifying compounds in combinatorial libraries. Learn about the design and evaluation of analgesic agents. • Learn about the techniques for encoding combinatorial libraries to track the identity of compounds. Evaluate the methods used for encoding and their impact on library management. • Understand the principles of high-throughput screening (HTS). Explore the use of HTS in the rapid evaluation	Detection, purification and analgesics; Encoding combinatorial libraries; High-throughput screening; Virtual screening; Chemical diversity and library design.	Lectures and scientific disscusions	Oral and written exams

		of large compound libraries. • Learn about the computational methods used in virtual screening. Evaluate the role of virtual screening in the drug discovery process. • Understand the importance of chemical diversity in drug discovery. Learn the principles of designing compound libraries to maximize the discovery of effective drugs.			

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, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry.
Main references (sources)	1. Wilson and Gisvold Textbook of Organic Medicinal and Pharmaceutical Chemistry. 2. "Introduction to Medicinal Chemistry" by Patrick
Recommended books and references (scientific journals, reports…)	1. "Pharmaceutical Chemistry" by Jill Barber and Chris Rostron: 2. "Medicinal Chemistry: The Modern Drug Discovery Process" by Erland Stevens and William W. Fleming
Electronic References, Websites	- **ChemGuide, (www.chemguide.co.uk)** - **Pharmaceuticals - MDPI:** This journal section on Medicinal Chemistry publishes updated reviews and research articles covering all aspects of small molecules as drug candidates1. - **Medicinal Chemistry Research - Springer:** A journal that provides prompt publication of experimental achievements in drug

	design, discovery, and mechanisms of action of biologically active compounds. - **ASHP:** Offers resources that help understand the basic concepts in medicinal chemistry. - **The Handbook of Medicinal Chemistry:** Provides a comprehensive overview of the field and insight into the latest trends and research. - **PharMSkooL:** Lists top apps and websites for pharmacy students, which can be a useful resource for anyone studying or working in the field.

Course Description Form

1. Course Name: Advanced Pharmaceutical Analysis
2. Course Code: 5210
3. Semester / Year: 2nd semester/5th year
4. Description Preparation Date: 23/3/2024
5. Available Attendance Forms: Fifth year students
6. Number of Credit Hours (Total) / Number of Units (Total): 45 hours/4 units
7. Course administrator's name (mention all, if more than one name)
Name: Lecturer. Dr. Ali Jabbar Radhi Email: alijebar56@alkafeel.edu.iq
8. Course Objectives

Course Objectives	• Equip students with theoretical knowledge and practical skills in advanced analytical techniques used for pharmaceutical analysis. • Develop proficiency in handling and interpreting data from various spectroscopic and analytical instruments. • Understand the principles behind each analytical method and the characteristic properties of organic compounds that are analyzed. • Apply analytical methods to solve problems, calculate parameters like lambda max, and analyze the structure and composition of compounds. • Gain hands-on experience with pharmaceutical analytical instruments
9. Teaching and Learning Strategies	
Strategy	• Lectures

	• Laboratory practical experiments • Scientific discussions and seminars • Homework • Scientific Research

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	6	• Understanding the Principles: Grasp the fundamental principles of UV/visible spectroscopy and how it applies to pharmaceutical analysis. • Instrumentation Knowledge: Learn about the instrumentation involved in UV/visible spectroscopy, including how to handle and prepare samples for analysis. • Absorption Characteristics: Identify and understand the characteristic absorption of organic compounds and how this information is used in the analysis of pharmaceuticals. • Lambda Max Calculation: Master the rules for calculating lambda max (the wavelength at which a compound's absorbance is maximum) and its application in determining the concentration of solutions. • Practical Application: Apply UV/visible spectroscopy techniques to analyze different pharmaceuticals, interpret the data obtained, and report the findings accurately. • Problem-Solving: Develop the ability to solve problems related to UV/visible spectroscopy and propose solutions based on the analysis results.	• UV / visible spectroscopy; Sample handling and instrumentation; • Characteristic absorption of organic compounds; • Rules for calculation of lambda max and application; • Application of UV/visible; spectroscopy; • Problems and solutions.	Lectures and scientific disscusions	Oral and written exams
3-7	14	• Understanding IR Spectroscopy Theory: Comprehend the theoretical basis of IR spectroscopy,	•Infra Red spectroscopy (theory and H-	Lectures and scientific	Oral and written exams

		including molecular vibrations and the effect of hydrogen bonding on spectra. • Sampling Techniques: Gain proficiency in various sampling techniques and learn how to prepare samples for IR analysis. • Interpreting Spectra: Develop the ability to interpret IR spectra, recognizing characteristic group frequencies and understanding their significance in identifying organic compounds. • Application of IR Spectroscopy: Apply IR spectroscopy to analyze and identify the structure of different organic compounds, and understand its role in pharmaceutical analysis. • Problem-Solving Skills: Enhance problem-solving skills by working through common issues encountered in IR spectroscopy and learning how to find solutions	bonding effect; •Sampling techniques and interpretation of spectra; •Characteristic group frequencies of organic compounds; •Application of IR spectroscopy; •Problems and solutions.	disscusions	
7-11	12	• Grasp NMR Fundamentals: Understand the nature of NMR absorption, including the principles of hydrogen-1 (H1) and carbon-13 (C13) NMR spectroscopy. • Chemical Shifts: Learn about chemical shifts, the factors that affect them, and how to interpret these shifts in the context of molecular structure analysis. • Spectra Interpretation: Acquire the skills to interpret NMR spectra, identify complex spin-spin splitting patterns, and deduce structural information from the data.	• H1 –Nucleo-magnetic Resonance (NMR) and C13-NMR spectroscopy; • Introduction, the nature of NMR absorption, chemical shifts and factors affecting them, information obtained from NMR spectra, more complex spin-spin splitting patterns, application of H1-NMR spectroscopy; • C13-NMR spectroscopy: introduction and characteristics, DEPT C13- NMR spectroscopy.	Lectures and scientific disscusions	Oral and written exams

12-14	11	• Introduction to Mass Spectroscopy: Understand the basic principles of mass spectroscopy and its role in pharmaceutical analysis. • Interpreting Mass Spectra: Learn how to interpret mass spectra, including the identification of molecular ions and analysis of fragmentation patterns. • Fragmentation Patterns: Gain insights into the mass behavior of common functional groups and how they fragment during mass spectrometry analysis. • Structural Elucidation: Develop the ability to use mass spectrometry data for structural elucidation of unknown compounds and determination of molecular weights. • Quantitative Analysis: Understand how mass spectrometry can be used for quantitative elemental analysis and the relationship between signal intensity and element percentage. • Applications in Drug Development: Explore the applications of mass spectrometry in drug development, including metabolite profiling and assessing the impact of structural modifications on drug efficacy and safety	Mass spectroscopy: • Introduction and interpreting Mass spectra; interpreting Mass spectra fragmentation patterns, Mass behavior of some common functional groups	Lectures and scientific disscusions	Oral and written exams
15	2	• Understanding Elemental Composition: Learn the significance of determining the amounts of carbon ©, hydrogen (H), nitrogen (N), sulfur (S), and oxygen (O) in a sample. • Sample Preparation and Analysis: Gain skills in preparing various types of samples, including solid, liquid, volatile, and viscous substances, for CHNSO	• elemental microanalysis CHNSO	Lectures and scientific disscusions	Oral and written exams

		analysis. • Interpreting Results: Develop the ability to interpret the results of CHNSO analysis to assess the purity and chemical composition of compounds. • Structural Determination: Use the composition data of organic elements to help determine the structure of the sample substance. • Quality Control Applications: Understand how CHNSO analysis is used in research and quality control within the pharmaceutical industry.			

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, reports .... etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1. Spectrometric Identification of Organic Compounds by Silverstein, Bassler and Morrill; 2. Applications of absorption spectroscopy of organic compounds by Dyer JR. 3. Organic Chemistry by McMurry 5thed; Thomason learning CA, USA 2000.
Main references (sources)	1. 1. Spectrometric Identification of Organic Compounds by Silverstein, Bassler and Morrill
Recommended books and references (scientific journals, reports…)	1. 2. Applications of absorption spectroscopy of organic compounds by Dyer JR. 2. 3. Organic Chemistry by McMurry 5thed; Thomason learning CA, USA 2000.
Electronic References, Websites	- **ChemGuide, (www.chemguide.co.uk)** - **Pharmaceuticals - MDPI:** This journal section on Medicinal Chemistry publishes updated reviews and research articles covering all aspects of small molecules as drug candidates1. - **Medicinal Chemistry Research - Springer:** A journal that provides prompt publication of experimental achievements in drug design, discovery, and mechanisms of action of

	biologically active compounds. - **ASHP:** Offers resources that help understand the basic concepts in medicinal chemistry. - **The Handbook of Medicinal Chemistry:** Provides a comprehensive overview of the field and insight into the latest trends and research. - **PharMSkooL:** Lists top apps and websites for pharmacy students, which can be a useful resource for anyone studying or working in the field.

Course Description Form

1. Course Name: : Applied Therapeutic II
2. Course Code: N\A
3. Semester / Year: 5th Class, 2nd Semester
4. Description Preparation Date:21\3\2024
5. Available Attendance Forms: Semester \ 5th class
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory 2
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Salim faiz kadhim Email: sfk9@alkafeel.edu.iq
8. Course Objectives

Course Objectives	**• The course aims to identify the various pathological conditions, their definition, causes, methods of diagnosis, then therapeutic methods and groups of medications used treatment.** **• Make the graduate student able to identify pathological conditions detected in the patient's tympanum** **• Make the graduate student able to communicate with patients in outpatient clinics** **• Make the graduating student capable of educating Patients regarding the medications used by them**

	• Make the graduating student able to match Wrong therapeutic methods with what exists In proven sources……
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A-1 To be able to identify pathological conditions found in the patient's tympanum A-2 To be able to communicate with the patient in outpatient clinics the public A-3 To be able to educate the patient regarding medicatior A-4 To be able to match incorrect therapeutic methods wi what is found in the sources Installed B - The skills objectives of the course B1 - Skills in following up on therapeutic methods B2 - Skills to identify new alternative medicines B3 - Skills to determine the most important goal of treatin common diseases Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation 3. Homework 4. Review typical cases proven by the source C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions C3- Taking the initiative to solve problems and present alternatives D - Transferable general and qualifying skills (other skills related to competency Employment and personal development). D1- Skills in using electronic resources from the Internet

	D2- Thinking skills in solving problems D3- To be able to work on research into the therapeutic methods that are given Aim better D-4 To be able to work in the hospital's pharmacy and specialized wards

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	6	Adrenal gland disease	Adrenal gland disease	Lectures using the smart board Discussion	Short exams and Semester exams End of semester exam oral exam
6-5	4	Introduction about cancer diseases	Introduction about cancer diseases	Lectures using the smart board Discussion	Short exams and Semester exams End of semester exam oral exam
7-8	6	Blood cancers-lymphoma	Blood cancers-lymphom	Lectures using the smart board Discussion	Short exams and Semester exams End of semester exam oral exam
9-11	4	Colorectal cancer	Colorecta cancer	Lectures using the smart board	Short exams and

				Discussion	Semester exams End of semester exam oral exam
12-13	4	Depression and schizophrenia	Depression and schizophrenia	Lectures using the smart board Discussion	Short exams and Semester exams End of semester exam oral exam
14	2	Bipolar schizophrenia	Bipolar schizophrenia	Lectures using the smart board Discussion	Short exams and Semester exams End of semester exam oral exam
15	4	Alzheimer disease	Alzheimer disease	Lectures using the smart board Discussion	Short exams and Semester exams End of semester exam oral exam

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)	Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy handbook 7 th edition Roger Walker, Clive

	Edwards (eds), Clinical Pharmacy & Therapeutics.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Internet PowerPoint
Electronic References, Websites	Not available

Course Description Form

1. Course Name: therapeutic drug monitoring

2. Course Code: 529

3. Semester / Year:2nd semester \ 5th stage

4. Description Preparation Date: 21\3\2024

5. Available Attendance Forms: semester\ 5th stage

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)

Name: dr. majeed nabeel
Email: majeed.alshaeer@alkafeel.edu.iq

8. Course Objectives

Course Objectives	**• Make the graduate student able to communicate with patients and using all available capabilities to communicate with patient as well as with doctors during the stages of medical treatment** **• Make the graduate student capable of educating patients regarding the medications used by them, including medicinal instructions given to them and overcoming all difficulties and the obstacles that hinder access to these Instructions to them….**

9. Teaching and Learning Strategies

Strategy	A- Cognitive objectives A-1 To be able to communicate with the patient and the medical staff at all stages Therapeutic

A-2 To be able to educate the patient regarding the medications given to them

A-3 To be able to overcome the difficulties and obstacles that hinder Communication and drug education for patients and medical staff involved in the treatment phases.

B - The skills objectives of the course

B1 - Increasing communication skills with patients and medical staff during the treatment stages

B2 - Increasing drug education skills for patients

B-3 Increasing the skills of making the right decision in giving drug consultations, Correct treatment for patients and overcoming all obstacles that hinder the process of communicatio and education Medication for patients and cooperation with the medical staff involved in the treatment phases

Teaching and learning methods

1. Lectures and use of the smart board
2. Class discussions and student participation
3. Homework
4. Writing scientific reports related to the course
5. Seminars
6. Educational laboratories
7. Hospital training

C- Emotional and value goals

C1- Participation in scientific activities

C2- Participation in scientific discussions

C3- Taking the initiative to solve problems and present alternative

D - Transferable general and qualifying skills (other skills related t competency Employment and personal development).

D1- Skills in using electronic resources from the Internet

D2- Thinking skills in solving problems

D3- Skills for conducting research studies within the course

10. Course Structure

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

1-4	6	Introduction	Introduction	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
4-5	2	Clinical PK equations and calculations	Clinical PK equations and calculations	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
5-6	2	Clinical PK in special population and cases	Clinical PK in special population and cases	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
6-7	2	Clinical PK/PD for Aminoglycosides	Clinical PK/PD for Aminoglycosides	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
7	2	Clinical PK/PD for Vancomycin	Clinical PK/PD for Vancomycin	Lectures using the smart board Discussions	Short exams And Semester exams

				Practical experiments	End of semester exam oral exam
8	2	Clinical PK/PD for Digoxin	Clinical PK/PD for Digoxin	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
9	2	Clinical PK/PD for Phenytoin	Clinical PK/PD for Phenytoin	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
10	2	Clinical PK/PD for other Anticonvulsants (e.g., Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide	Clinical PK/PD for other Anticonvulsants (e.g., Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuxsimide	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
11	2	Clinical PK/PD for other Cardiovascular agents (e.g., Lidocaine, Procainamide/N-Acetyl Procainamide	Clinical PK/PD for other Cardiovascular agents (e.g., Lidocaine, Procainamide/N-Acetyl Procainamide	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam
12	2	Clinical PK/PD for Theophylline	Clinical PK/PD for Theophylline	Lectures using the smart board	Short exams

				Discussions Practical experiments	And Semester exams End of semester exam oral exam
13	2	Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus	Clinical PK/PD for Immunossprasants (e.g., Cyclosporine, Tacrolimus	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End of semester exam oral exam

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)	Applied Clinical Pharmacokinetics, Second Edition, 2008 by Larry A. Bauer
Main references (sources)	Clinical Pharmacokinetics Concepts and Applications, Third Edition, 1995 by Malcolm Rowland and Thomas Tozer;
Recommended books and references (scientific journals, reports…)	Internet PowerPoint
Electronic References, Websites	Not available

Course Description Form

1. Course Name: Pharmacoeconomy
2. Course Code: 527
3. Semester / Year: 5th Class, 2nd Semester
4. Description Preparation Date: 21\3\2024
5. Available Attendance Forms: SEMESTER\5TH STAGE
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory 2
7. Course administrator's name (mention all, if more than one name)
Name: DR. SALIM FAIZ KADHIM Email: sfk9@alkafeel.edu.iq
8. Course Objectives

Course Objectives	• **The present course will give students the basic understanding of the tools needed to assess the costs and outcomes of medications and pharmaceutical care services. It will enable participants to evaluate the pharmacoeconomic and quality of life literature for the purpose of rational decision-making. Students will be exposed to the drug-focused approaches to pharmacoeconomic research and the fundamentals of quality of life research……**

9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A-1 To be able to communicate with the patient and the medical staff during the treatment stages A-2 He must be able to educate the patient regarding the medications given to him. A-3 To be able to overcome difficulties and obstacles that hinder communication and education Medication for patients and medical staff involved in the treatment phases. B - The skills objectives of the course B1- Writing scientific reports. B2 - Increasing communication skills with patients and medical staff during the treatment stages B3 - Increasing drug education skills for patients B-4 Increasing the skills of making the right decision in giving drug consultations Correct treatment for patients and overcoming all obstacles that hinder the process of communication and education Medication for patients and cooperation with the medical staff involved in the treatment phases Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation in solving mathematical problems 3. Homework 4. Writing scientific reports related to the course 5. Seminars 6. Hospital training C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions C3- Taking the initiative to solve problems D - Transferable general and qualifying skills (other skills related to competency Employment and personal development D1- Skills in using electronic resources from the Internet D2- Thinking skills in solving problems D3- Skills for conducting research studies within the course

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1-2	4	Course overview & basic principle of pharmacoeconomics	Course overview & basic principle of pharmacoeconomics	Lectures and solving mathematical problems using the blackboard	Short exar and Semester exams End of semester exam oral exam
3-4	4	Cost analysis	Cost analysis	Lectures and solving mathematical problems using the blackboard	Short exar and Semester exams End of semester exam oral exam
5-6	4	Cost effectiveness analyses (CEA).	Cost effectiveness analyses (CEA).	Lectures and solving mathematical problems using the blackboard	Short exar and Semester exams End of semester exam oral exam
7-8	4	1st mid-term examination.	1st mid-term examination.	Lectures and solving mathematical problems using the blackboard	Short exar and Semester exams End of semester exam oral exam
9-10	4	Cost utility analyses (CUA).	Cost utility analyses (CUA).	Lectures and solving mathematical problems using	Short exar and Semester exams

				the blackboard	End of semester exam oral exam
11-12	4	Cost-benefit analysis (CBA)	Cost-benefit analysis (CBA)	Lectures and solving mathematical problems using the blackboard	Short exar and Semester exams End of semester exam oral exam
13-15	6	Critical assessment of economic evaluation	Critical assessment of economic evaluation	Lectures and solving mathematical problems using the blackboard	Short exar and Semester exams End of semester exam oral exam

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)	- Bootman JL, Townsend RJ, McGhan WF, (Eds.), Principles of Pharmacoeconomics, 2nd ed., Harvey Whitney Books Company, Cincinnati, Oh, latest edition
Main references (sources)	
Recommended books and references (scientific journals, reports…)	INTERNET POWERPOINT
Electronic References, Websites	NOT AVAILABLE

Course Description Form

1. Course Name: Medical ethics
2. Course Code: 3211
3. Semester / Year: 3rd Class, 2nd Semester
4. Description Preparation Date:21\3\2024
5. Available Attendance Forms: SEMESTER\3RD STAGE
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory 1
7. Course administrator's name (mention all, if more than one name)
Name: Prof.dr. Mohammed dakhil alrekabi Email: Drmdr@alkafeel.edu.iq
8. Course Objectives

Course Objectives	• **The course will provide an overv of ethical issues facing practicing pharmacists in order to enable the student to understand the basic concepts of ethics which formulate the relationship of pharmacist with the patient, colleges, and other health personnel in order to deliver his pharmaceutical services in good way.** ……

9. Teaching and Learning Strategies

Strategy	• **The course will begin with an introduction**

	to ethics in pharmaceutical practice and then proceed examine in depth specific topics (Beneficence, Autonomy Confidentiality, Consent…). • **The course will include lectures, case analysis, and classroom discussion**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Introduction to Pharmacy Ethics (Theoretical considerations).	Introduction to Pharmacy Ethics (Theoretical considerations).	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
2	1	Code of Ethics for Pharmacists.	Code of Ethics for Pharmacists.	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
3	1	Common Ethical Considerations in Pharmaceutical Care Practice (Beneficence, Autonomy, Honesty, Informed Consent, Confidentiality, Fidelity ……).	Common Ethical Considerations in Pharmaceutical Care Practice (Beneficence, Autonomy, Honesty, Informed Consent, Confidentiality, Fidelity ……).	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
4	1	Ethical problems in the pharmacist's clinical practice.	Ethical problems in the pharmacist's clinical practice.	Lectures using the smart board	Short exam and Semester exams

				Scientific Discussions	End of semester exam oral exam
5	1	Preventing misuse of medicines.	Preventing misuse of medicines.	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
6	1	Case studies in pharmacy ethics	Case studies in pharmacy ethics	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
7	1	Interprofessional Relations.	Interprofessional Relations.	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
8	1	Making ethical decisions.	Making ethical decisions.	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam oral exam
9-11	3	Ethical issues related to clinical pharmacy research.	Ethical issues related to clinical pharmacy research.	Lectures using the smart board Scientific Discussions	Short exam and Semester exams End of semester exam

					oral exam

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)	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 -2 Studies in Pharmacy Ethics. second edition. Copyright © 2008 by Oxford University Press, Inc. - Ruth Rodgers, (ed.); fast track: Law and Ethics in Pharmacy Practice. Pharmaceutical Press 2010. Joy Wingfield and David Badcott. Pharmacy Ethics and Decision Making. Pharmaceutical Press2007
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Internet PowerPoint
Electronic References, Websites	Not available

Course Description Form

1. Course Name: : Communication Skills
2. Course Code: 215
3. Semester / Year: 4th Class, 2st Semester
4. Description Preparation Date:21\3\2024
5. Available Attendance Forms: semester,4th class
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory 2
7. Course administrator's name (mention all, if more than one name)
Name: Dr.Ahmed kadhim Email: Ahmad.k.pharm@alkafeel.edu.iq
8. Course Objectives

Course Objectives	**Communication skill is one of the missions of pharmacy care practice, aims to develop a conventional relationship between pharmacist and patients, in which information is exchanged, hold in confidence and used to optimize patient care through appropriate drug therapy. This course is intended to pharmacist provide better care to patients, and focus on communication skills necessary to…..**
9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A-1 To be able to communicate with the patient and the medical staff during the treatment stages A-2 To be able to educate the patient regarding the medications given to them

	. A-3 To be able to overcome the difficulties and obstacles that hinder communication and drug education for patients and medical staff participating in the treatment stages. B - The skills objectives of the course B1 - Increasing communication skills with patients and medical staff during the treatment stages B2 - Increasing drug education skills for patients B-3 Increasing the skills of making the right decisions in giving correct drug advice to patients and overcoming all obstacles that hinder the process of communication and drug education for patients and cooperating with the medical staff participating in the treatment stages. Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation 3. Seminars 4. Hospital training 5. Discussing the cases C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions C3- Taking the initiative to solve problems Teaching and learning methods Lectures using the smart board Scientific discussions Using data show Conducting practical tests through actual application in private pharmacies during Summer training period for students and benefiting from it. D- Transferable general and qualifying skills (other skills related to suitability Employment and personal development). D1- Skills in using electronic resources from the Internet D2- Thinking skills in solving problems D3- Skills for conducting research studies within the course D-4 To be able to work in private pharmacies. D-5 To be able to work in the lobbies and pharmacies of

	hospitals or centers Health affiliated with the Ministry of Health.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	6	Patient-centered communication pharmacy practice	Patient-centered communication pharmacy practice	Lectures using the smart boa	Short exams and Semester exams End of semester exam oral exam Class discussions
4-6	6	Barriers to communication	Barriers to communication	Lectures using the smart boa	Short exams and Semester exams End of semester exam oral exam Class discussions
7-9	4	Interview and evaluation	Interview and evaluation	Lectures using the smart boa	Short exams and Semester exams End of semester exam oral exam Class discussions

9-10	4	Patient consultation, consultation menu, point by point discussion, consultation scenario	Patient consultation, consultation menu, point by point discussion, consultation scenario	Lectures using the smart boa	Short exams and Semester exams End of semester exam oral exam Class discussions
11-13	6	Strategies to meet special needs people	Strategies to meet special needs people	Lectures using the smart board	Short exams and Semester exams End of semester exam oral exam Class discussions
14-15	4	Electronic communication in health care	Electronic communication in health care	Lectures using the smart board	Short exams and Semester exams End of semester exam oral exam Class discussions

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-Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Internet PowerPoint
Electronic References, Websites	Not available

Course Description Form

1. Course Name: Hospital training

2. Course Code: N\A

3. Semester / Year: 1st semester\ 5th year

4. Description Preparation Date:10\9\2023

5. Available Attendance Forms: semester\ 5th stage

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

2 hr. theory and 2 hr. practical weekly

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

Name: Dr.Ahmed kadhim
Dr. majeed nabeel
Dr. Maryam haider
Dr. hawraa kadhim
Email: : majeed.alshaeer@alkafeel.edu.iq
Ahmad.k.pharm@alkafeel.edu.iq
maryamh.alhaddad@student.uokufa.edu.iq
hawraa.Kadim1200m@copharm.uobaghdad.edu.iq

8. Course Objectives

Course Objectives	**• Make the graduate student able to Communicate with patients and using all availa capabilities to communicate with the patient well as with doctors during the stages of medical treatment** **• Make the graduate student capable of educating patients regarding the medications used by them;** **Medication instructions given them and overcome all difficulties and obstacles Which hinders these instructions from reaching them….**

9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A-1 To be able to communicate with the patient and the medical staff during the treatment stages A-2 He must be able to educate the patient regarding the medications given to him A-3 To be able to overcome difficulties and obstacles that hinder communication And drug education for patients and medical staff involved in the treatment phases. B - The skills objectives of the course B1- Writing scientific reports. B2-Reading medical prescriptions. B3 - Increasing communication skills with patients and medical staff during the treatment stages B4 - Increasing drug education skills for patients B-5 Increasing the skills of making the right decision in giving drug consultations Correct treatment for patients and overcoming all obstacles that hinder the process of communication and education Medication for patients and cooperation with the medical staff involved in the treatment phases Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation 3. Homework 4. Writing scientific reports related to the course 5. Seminars -6 Hospital training C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions C3- Taking the initiative to solve problems D - Transferable general and qualifying skills (other skills related to competency

	Employment and personal development). D1- Skills in using electronic resources from the Internet D2- Thinking skills in solving problems D3- Skills for conducting research studies within the course

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-6	12	Internal medicine ward	Cardiovascular diseases, respirator diseases, kidney diseases (acute and chronic kidney failure), ulcerative stomach diseases, diabetes and its complications.	Lectures using smart board	Short exams And Semester exams End of semester exam oral exam
1-6	12	Gynecological and obstetric ward	Miscarriage, diabetes and high blood pressure during pregnancy, thyroid diseases, epilepsy, anemia and urinary tract infection during pregnancy, ectopic pregnancy and	Lectures using smart board	Short exams And Semester exams End of semester exam oral exam

			molar pregnancy, ovarian cysts and thickening the uterine wall.		
1-6	12	Surgical ward	Pre-operative care, post-operative care nutrients, anesthesia, hernia, appendix, diabetic foot, gallstones, deep vein thrombosis, breast cancer, kidney stones	Lectures using smart board	Short exams And Semester exams End of semester exam oral exam
1-6	12	Pediatric ward	Acute shortness breath, fever cramp jaundice and complications, digestive system diseases, nervous system diseases	Lectures using smart board	Lectures solving mathematical problems using the blackboard

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)	
Main references (sources)	The approved lectures for the University Baghdad for the purpose of hospital training
Recommended books and references (scientific journals, reports…)	Internet PowerPoint
Electronic References, Websites	Injectable drugs guide Drugs in pregnancy Oxford handbook of obstetrics and gynecology The renal drugs handbook

Course Description Form

1. Course Name: : Therapeutic 1
2. Course Code: N\A
3. Semester / Year: first semester\ 5th stage
4. Description Preparation Date:2023\9\10
5. Available Attendance Forms: semester\ 5th stage
6. Number of Credit Hours (Total) / Number of Units (Total)
3 hr. theory weekly
7. Course administrator's name (mention all, if more than one name)
Name: prof.dr. Mohammed dakhil alrekabi Email: Drmdr@alkafeel.edu.iq
8. Course Objectives

Course Objectives	**• The course aims to identify pathological Cases Different definitions, causes, and methods of diagnosis, Therapeutic methods and drug groups used in treatment** **• Make the graduating student able to recognize Pathological conditions proven in the patient's tympanum** **• Make the graduate student able to communicate with Patients in general diseases outpatient clinics** **• Make the graduate student capable educating patients Regarding the medications used by them** **• Make the graduate student able to match methods Incorrect treatment with what is found in proven sources…..**

9. Teaching and Learning Strategies	
Strategy	A- Cognitive objectives A1-The ability to conduct pharmaceutical calculations for medical prescriptions A2-. Learn about methods for conducting pharmaceutical calculations regarding dilution and concentration of solutions A3- Learn how to calculate drug doses on different bases A4-The ability to perform calculations for intravenous solutions and how to adjust their rate of absorption into t body A-5 To be able to identify pathological conditions found i the patient's tympanum A-6: To be able to communicate with the patient in genera diseases outpatient clinics A-7 To be able to educate the patient regarding medicatio A-8 To be able to match incorrect therapeutic methods w what is found in proven sources B - The skills objectives of the course B1-Reading medical prescriptions. B 2. The skill of distinguishing between pharmaceutical terms used in intravenous solutions B3 - Skills for following up on therapeutic methods B4 - Skills to identify new alternative medicines B5 - Skills to determine the most important goal of treati common diseases Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation 3. Homework 4. Review typical cases proven by the source C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions C3- Taking the initiative to solve problems D - Transferable general and qualifying skills (other skills related to competency

	Employment and personal development). D1- Skills in using electronic resources from the Internet D2- Thinking skills in solving problems D-3 To be able to work in research into the therapeutic methods that are given Aim better D-4 To be able to work in the hospital's pharmacy and Wards Specialization

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-5	15	Acute coronary atherosclerosis syndrome	Acute coronary atherosclerosis syndrome	Lectures using Smart board	short exams and Semester exams End of semester exam oral exam
6-8	9	Nervous system disease	Nervous system disease	Lectures using Smart board	short exams and Semester exams End of semester exam oral exam
9-11	9	Acute kidney failure	Acute kidney failure	Lectures using Smart board	short exams and Semester exams End of semester exam oral exam

12-15	12	Urinary incontinence and nocturnal urination children	Urinary incontinence and nocturnal urination children	Lectures using Smart board	short exams and Semester exams End of semester exam oral exam

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)	Roger Walker, Clive Edwards (eds), Clinical Pharmacy &Therapeutics.2012
Main references (sources)	Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy Edition 7th hand book
Recommended books and references (scientific journals, reports…)	Internet PowerPoint
Electronic References, Websites	Not available

Course Description Form

1. Course Name: : public health
2. Course Code:415
3. Semester / Year: 1st semester\4th stage
4. Description Preparation Date:2023\9\10
5. Available Attendance Forms: semester\ 4th stage
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory 2
7. Course administrator's name (mention all, if more than one name)
Name: م.م احمد كاظم عبد Email: Ahmad.k.pharm@alkafeel.edu.iq
8. Course Objectives

Course Objectives	**This course enables the students to understand the principles of public health and the art of preventing disease, promoting health and prolonging life, through organized effort of society. ….**
9. Teaching and Learning Strategies	
Strategy	A- Tourism objectives A-1 To be able to communicate with the patient and the medical staff during the treatment stages A-2 The patient must be able to provide education regarding their medications . A-3 To be able to overcome the difficulties and obstacles that hinder communication and education that patients and medical staff experience during the treatment stages. B - The technical objectives of the course B1- Increasing communication skills with patients and medical staff during the treatment stages B2 - Increasing drug education skills for patients

B-3 Acquiring the skills of joining the right decision in giving drug consultations to patients, overcoming all obstacles that hinder the process of communication and drug education for patients, and cooperating with medical artists in the therapeutic stages.

B4- Writing scientific reports.

Teaching and learning methods

1. Lectures youth smart board
2. Homework
3. Writing scientific reports related to the course

C- Emotional and value goals
C1- Participation in scientific sciences
C2- Participation in scientific discussions
C3- An initiative to solve problems

D - General and qualifying skills (other skills related to employability
and personal development).
D1- Skills in using electronic resources from the Internet
D2- Thinking skills in solving problems
D3- Skills for managing studies within the course

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction: The scope and concerns of public health, health care system in Iraq	Introduction: The scope and concerns of public health, health care system in Iraq	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
2	2	Measuring, Monitoring, and Evaluating the Health of a Population	Measuring, Monitoring, and Evaluating the Health of a Population	Lectures using smart board	Short exams and Semester exams

					End of semester exam oral exam
3	2	Population screening and public health	Population screening and public health	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
4	2	Prevention and control of non-communicable diseases	Prevention and control of non-communicable diseases	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
5	2	Principles of infectious disease control	Principles of infectious disease control	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
6	2	National immunization plan of Iraq.	National immunization plan of Iraq.	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
7	2	Communicable diseases (infections through the gastro-intestinal tract, Infections through skin	Communicable diseases (infections through the gastro-intestinal tract, Infections through skin and mucous membranes, Infections through the respiratory tract)	Lectures using smart board	Short exams and Semester exams End of semester exam

		and mucous membranes, Infections through the respiratory tract)			oral exam
8	2	prevention and control of public health hazards (Tobacco, alcohol, Public health aspects of illicit psychoactive drug use)	prevention and control of public health hazards (Tobacco, alcohol, Public health aspects of illicit psychoactive drug use)	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
9-10	4	Major health problems (Obesity, Physical activity and health, Public mental health and suicide, Dental public health, Sexually transmitted infections, Chronic hepatitis and other liver disease, Tuberculosis)	Major health problems (Obesity, Physical activity and health, Public mental health and suicide, Dental public health, Sexually transmitted infections, Chronic hepatitis and other liver disease, Tuberculosis	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
11	2	Nutritional disorders and Family health	Nutritional disorders and Family health	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
12	2	Environmental health and	Environmental health and Occupational health	Lectures using smart	Short exams and

		Occupational health		board	Semester exams End of semester exam oral exam
13	2	Travel health and	Travel health and Introduction: a historic background of pharmacy practice.	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
14-15	4	Pharmacy Practice and the health care system	Pharmacy Practice and the health care system	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
16	2	Health promotion in community pharmacy and Introduction to Pharmaceutical care	Health promotion in community pharmacy and Introduction to Pharmaceutical care	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam
17-18	4	Pharmaceutical care planning and Community pharmacy management	Pharmaceutical care planning and Community pharmacy management	Lectures using smart board	Short exams and Semester exams End of semester exam oral exam

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)	Lucas AO, Gilles HM, (Eds), Short Textbook of Public Health Medicine for the Tropic, (4th Ed), 2003.
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Course Description Form

1. Course Name: : Medical terminology
2. Course Code: 116
3. Semester / Year: 1st Class, 1st Semester
4. Description Preparation Date:2023\9\10
5. Available Attendance Forms: semester,1st class
6. Number of Credit Hours (Total) / Number of Units (Total)
1 hour theory weekly
7. Course administrator's name (mention all, if more than one name)
Name: prof. Mohammed dakhil alrekabi Email: Drmdr@alkafeel.edu.iq
8. Course Objectives

Course Objectives	**In this course, students will learn to pronounce, spell, and define medical and pharmaceutical terms used in health care settings. It will use a word–building strategy that helps them discover connections and relationships among word roots, prefixes, and suffixes. They will learn meaning of each part of a complex medical and pharmaceutical term and be able to put parts together and define the term…..**

9. Teaching and Learning Strategies	
Strategy	A - Cognitive objectives A1- Preparing the student and making him familiar with all types of medical terminology used in his medical field B - The skills objectives of the course B1- Many examples B2- Solve the exercises in the prescribed book B3- Solve exercises from external sources and the Internet

	Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation 3. Homework C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions D - Transferable general and qualifying skills (other skills related to employability and personal development). D1- Skills in using electronic resources from the Internet D2- Discussing different medical conditions and findi appropriate treatments for them

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	1	Study simple word roots and common suffixes	Principles of Medical terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
2-3	2	Study of word prefixes related to pharmaceutical sciences	Principles of Medical terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
4	1	Study of the reproductive organs	Body system terminology	Lectures using the smart board	Short exams and Semester exams

		and urinary tract		Discussions	End of semester exam oral exam
5-6	2	Study of the digestive system	Body system terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
7-8	2	Study of growth, development and the body	Body system terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
9	1	Study of gynecology, pregnancy and childbirth	Body system terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
10	1	Study of the eye and study of the respiratory system	Body system terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
11	1	Study of the nervous system	Body system terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam

					oral exam
12-13	2	Study of blood and its diseases and study of the immune system	Body system terminology	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam
14-15	2	Study qualifications and statistics symptoms, diagnosis and treatment	Study qualifications and statistics symptoms, diagnosis and treatment	Lectures using the smart board Discussions	Short exams and Semester exams End of semester exam oral exam

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)	Edward CC, (Ed.); A Short Course in Medical Terminology; 1st Ed.; Lippincott Williams and Wilkins; 2008.
Main references (sources)	1- Textbooks: A short course in medical terminology, 1st Ed.; Lippincott Williams and Wilkins;2008 2_PC Networking for system programmers
Recommended books and references (scientific journals, reports…)	Resources related to new medical terminology from the Internet or other modern books
Electronic References, Websites	Internet network

Course Description Form

1. Course Name: : Clinical pharmacy II

2. Course Code: N/A

3. Semester / Year: 2nd semester \ 4th stage

4. Description Preparation Date: 21\3\2024

5. Available Attendance Forms: semester\ 4th stage

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

Theory 2 hours Lab 1

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

Name: prof.dr. Mohammed dakhil alrekabi
Email: Drmdr@alkafeel.edu.iq

8. Course Objectives

Course Objectives	**To make the graduate student able to communicate with patients and use all available capabilities to communicate the patient as well as with doctors during the stages of medical treatment.** **To make the graduate student capable of educating patients regarding the medications used by them, including medication instructions given to them, and overcoming all the difficulties and obstacles that hinder these instructions from reaching them….**

9. Teaching and Learning Strategies

Strategy	A- Cognitive objectives A-1 To be able to communicate with the patient and the medical staff at all stages of treatment

	A-2 To be able to educate the patient regarding the medicatio given to them A-3 To be able to overcome difficulties and obstacles that hinder communication And drug education for patients and medical staff involved in the treatment phases. B - The skills objectives of the course B1 - Increasing communication skills with patients and medical staff during the treatment stages B2 - Increasing drug education skills for patients B-3 Increasing the skills of making sound decisions in giving adviceCorrect medication for patients and overcoming all obstacles that hinder the process Communication and drug education for patients and cooperation with the medical staff involved in the treatment phases Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation in scientific discussion 3. Homework 4. Seminars 5. Hospital training C- Emotional and value goals C1- Participation in scientific activities C2- Participate in scientific discussions and present the results of scientific research C3- Taking the initiative to solve problems and present alternatives D - Transferable general and qualifying skills (other skills related to competency Employment and personal development). D1- Skills in using electronic resources from the Internet D2- Thinking skills in solving problems D3- Skills for conducting research studies within the course

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introduction	Introduction	Lectures using the smart board Scientific Discussions	Short exams And Semester exams End of semester exam oral exam
2-5	8	Patient care	Patient care	Lectures using the smart board Scientific Discussions	Short exams And Semester exams End of semester exam oral exam
6-10	10	Heart failure	Heart failure	Lectures using the smart board Scientific Discussions	Short exams And Semester exams End of semester exam oral exam
11-15	10	Peptic ulcer disease	Peptic ulcer disease	Lectures using the smart board Scientific Discussions	Short exams And Semester exams End of semester exam oral exam

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)	Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Internet Power point
Electronic References, Websites	

Course Description Form

1. Course Name: CLINICAL PHARMACY 1
2. Course Code: N/A
3. Semester / Year: 1ST SEMESTER\4TH STAGE
4. Description Preparation Date:10\9\2023
5. Available Attendance Forms: SEMESTER\ 4TH STAGE
6. Number of Credit Hours (Total) / Number of Units (Total)
Theory 2 lab: 1
7. Course administrator's name (mention all, if more than one name)
Name: DR. SALIM FAIZ KADHIM Email: sfk9@alkafeel.edu.iq
8. Course Objectives

Course Objectives	**• Make the graduate student able to Communicate with patients and using all capabilities Available to communicate with patient as well as with doctors during the stages of medical treatment.** **• Make the graduating student capable of Educating patients regarding Medicines used by them including It includes the medicat instructions given to them and to overcome all the difficulties and obstacles that hinder these instructions from reaching them……**

9. Teaching and Learning Strategies

Strategy	A- Cognitive objectives A-1 To be able to communicate with the patient and the medical staff at all stages Therapeutic A-2 To be able to educate the patient regarding the medications given to them A-3 To be able to overcome the difficulties and obstacles

	that hinder Communication and drug education for patients and medical staff involved in the treatment phases. B - The skills objectives of the course B1 - Increasing communication skills with patients and medical staff during the treatment stages B2 - Increasing drug education skills for patients B-3 Increasing the skills of making the right decision in giving drug consultations, Correct treatment for patients and overcoming all obstacles that hinder the process of communication and education Medication for patients and cooperation with the medical staff involved in the treatment phases Teaching and learning methods 1. Lectures and use of the smart board 2. Class discussions and student participation 3. Homework 4- Seminars -5 educational laboratories C- Emotional and value goals C1- Participation in scientific activities C2- Participation in scientific discussions C3- Taking the initiative to solve therapeutic problems and presenting alternatives D - Transferable general and qualifying skills (other skills related to competency Employment and personal development). D1- Skills in using electronic resources from the Internet D2- Thinking skills in solving problems D3- Skills for conducting research studies within the course D4. To be able to work in private pharmacies . D5: To be able to work in the lobbies and pharmacies of hospitals or centers Health affiliated with the Ministry of Health . D6: To be able to work in the field of pharmaceutical advertising in scientific offices D7- To be able to work in the need assessment and drug monitoring departments as well Pharmaceutical registration the directorates of the Ministry of Health

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1-3	6	Introduction to community pharmacy.	Introduction to community pharmacy.	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End semester exam oral exam
4-5	4	Respiratory problems: Cough, Common cold, allergic rhinitis, Otitis media, Laryngitis & Pharyngitis	Respiratory problems: Cough, Common cold, allergic rhinitis, Otitis media, Laryngitis & Pharyngitis	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End semester exam oral exam
6-7	4	Pediatric care practice : Oral thrush, pinworms and head lice	Pediatric care practice : Oral thrush, pinworms and head lice	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End semester exam oral exam
8-10	4	Skin conditions: Acne, Scabies, Psoriasis, Hair loss, Fungal infection, Eczema and Dermatitis, Dandruff, Cold sore, Corns and Callus.	Skin conditions: Acne, Scabies, Psoriasis, Hair loss, Fungal infection, Eczema and Dermatitis, Dandruff, Cold sore, Corns and Callus.	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End semester exam oral exam
11-14	8	Women's health care: Cystitis and vaginal thrush, primary dysmenorrhea and Premenstrual syndrome.	Women's health care: Cystitis and vaginal thrush, primary dysmenorrhea and Premenstrual syndrome.	Lectures using the smart board Discussions	Short exams And Semester exams End semester exam

				Practical experiments	oral exam
15	2	G.I.T problems: Diarrhea, Constipation, Heart burn and indigestion, IBS and Hemorrhoids	G.I.T problems: Diarrhea, Constipation, Heart burn and indigestion, IBS and Hemorrhoids	Lectures using the smart board Discussions Practical experiments	Short exams And Semester exams End semester exam oral exam

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)	Reference Text: ALISON BLENKINSOPP, PAULPAXTON(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…)	INTERNET POWERPOINT
Electronic References, Websites	NOT AVAILABLE

Course description Form

1. Course Name	Clinical toxicology
2. Course Code	**516**
3. Available Attendance Forms:	**Semester/fifth stage**
4. Semester/year	**Semester/1**
5. Number of study hours(total)	**2 theoretical hours and 2 practical hours per week**
6. Description Preparation Date:	**3/17/2024**
7. Number of Credit Hours	
Name: Salem Fayez Kadhim **Email: sfk9@alkafeel.edu.iq**	
8. Course objectives	
1. UnderstandingCases of poisoningtheDiagnosis and treatment. 2. StudyMethods used to treat poisoning cases.	

9. Teaching and Learning Strategies
1. Analysis and Interpretation: Students' ability to analyze dataConcerning the toxicity of materialsUnderstand them, and then interpret the results. 2. Practical skills: Develop practical skills in carrying out experiments and measurementsToxicityAnd the use of medical devices. 3. Scientific Communication: Enhancing the ability to communicate effectively and clearly about concepts and resultsRelated to substance poisoning. 4. Problem solving: developing the skill of solving problems in the context of scientific research. 5. Teamwork: Enhance the ability to work as a team and interact with classmates in research tasks and experiments. Use of Technologies: Learn how to use technologies and tools related to the fieldWith toxinseffectively.

10. Course structure					
week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Evaluation method
1	2	Clinical toxicology	Introduction	Lectures using the smart board Scientific discussions	Oral and written exam
2	2	Clinical toxicology	Management of poisoned patient – patient stabilization	Lectures using the smart board Scientific discussions	Oral and written exam
3	2	Clinical toxicology	Management of poisoned patient – Clinical evaluation	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
4	2	Clinical toxicology	Management of poisoned patient – Minimization of toxicant absorption	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
5	2	Clinical toxicology	Enhancement of toxicant elimination	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
6	2	Clinical toxicology	Management of poisoned patient – Antidotes	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
7	2	Clinical toxicology	Management of poisoned patient – Follow up and patient care	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
8	2	Clinical toxicology	Toxicity of OTC medications	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

9	2	Clinical toxicology	Toxicity of paracetamol	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
10	2	Clinical toxicology	Toxicity of salicylates	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
11	2	Clinical toxicology	Toxicity of theophylline	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
12	2	Clinical toxicology	Toxicity of house hold products	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
13	2	Clinical toxicology	Toxicity of Antihypertensives	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
14	2	Clinical toxicology	Toxicity of TCAs	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
15	2	Clinical toxicology	Toxicity of Beta blockers	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

11. Learning and teaching resources	
1-Required prescribed books	- Casarett; John Doull. Clinical toxicology
2-Main references (sources)	

Recommended books and references (scientific journals, reports,.....)	Textbook of Clinical Toxicology" - Richard C. Dart
Electronic references, Internet sites	**ResearchGate**

12. Course evaluation

Quizzes	oral examinations	Midterm Exam	practical quizzes	Final exam
2.5	2.5	15	20	60

Course description

1. Course Name	pharmacologyIII
2. Course Code	426
3. Available Attendance Forms:	Semester/fourth stage
4. Semester/year	Semester II
5. Number of study hours(total)	2 hours theoretical
6. Description Preparation Date:	17/3/2024
7. Number of Credit Hours	
the name:Prof. Dr. Mustafa Ghazi Salloum Al-Abbasi Email:prof.dr.mustafaghazi@alkafeel.edu.iq	
8. Course objectives	
Introducing pharmacy students to the different drug groups that affect endocrine systems and their use in correcting abnormalities in endocrine functions. Furthermore, the course will cover medications used in the treatment of oncological diseases, bone disorders, obesity, and erectile	

dysfunction. Inflammatory agents and anti-inflammatory medications will also be covered during this course.

9. strategyEducation and learning

Interactive teaching: Use interactive methods such as group discussions and practical exercises to encourage active participation from students and enhance their understanding of the material.
Clinical case study: Use real-life clinical cases to apply pharmacological concepts to real disease situations, helping students understand how to apply knowledge in clinical practice.
Multimedia presentations: Use presentations, photos, illustrations, and videos to explain pharmacological concepts more clearly and in detail.
Problem-based learning: Place students in situations where they find solutions to specific drug problems, enhancing problem-solving skills and applying knowledge in practical contexts.

10. Course structure					
week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Evaluation method
first	2	Understanding the effects of medications on thyroid and pituitary gland diseases	Effects of medications on thyroid and pituitary gland diseases	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
second	2	Understanding the effects of medications on diabetes	Effects of medications on diabetes	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
third	2	Understanding the effects of corticosteroids	Effects of corticosteroids and their uses	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
fourth	2	Understanding the effects of estrogens and androgens	Effects of estrogens and androgens	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
Fifth	2	Understanding the effects of estrogens and androgens	Effects of estrogens and androgens	The smart board presents the problem and discusses finding	Oral and written exam

				appropriate solutions	
VI	2	Understanding the effects of non-steroidal drugs	Effects of non-steroidal drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
Seventh	2	Understanding the effects of non-steroidal drugs	Effects of non-steroidal drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
VIII	2	Understanding the effects of non-steroidal drugs	Effects of non-steroidal drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
Ninth	2	Understanding the effects of cancer drugs	Understanding the effects of cancer drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
The tenth	2	Understanding the effects of cancer drugs	Understanding the effects of cancer drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam

eleventh	2	Understanding the effects of cancer drugs	Understanding the effects of cancer drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
twelveth	2	Understanding the effects of cancer drugs	Understanding the effects of cancer drugs	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam

11. Learning and teaching resources

1- Required prescribed books	Lippincott Pharmacology 8th edition
2- Main references (sources)	Clinical Pharmacology Laurence Latest edition
Recommended books and references (scientific journals, reports,.....)	Applied Therapeutics by Koda Kamble Latest edition
Electronic references, websites,...	ResearchGate

12. Course evaluation

Quizzes Exam	**Oral exam**	**Midterm exam**	**Final exam**
5	**5**	**20**	**70**

Course Description Form

1. Course Name	**Pharmacology II**
2. Course Code	**411**
3. Available attendance forms	**Semester/fourth stage**
4. Semester/year	**Semester I**
5. Number of study hours(total)	**3 theoretical hours and 2 practical hours per week**
6. Description Preparation Date:	**3/17/2024**
7. Number of Credit Hours	
Name: Prof. Dr. Mustafa Ghazi Salloum Al-Abbasi **Email: prof.dr.mustafaghazi@alkafeel.edu.iq**	
8. Course objectives	
Introducing pharmacy students to the general pharmacology of the central nervous system and the different drug groups used to treat diseases of the central nervous system or drugs that change its function. The student will be introduced to the different medications used in the treatment of cardiovascular diseases. Furthermore, the course will cover medications that affect the digestive and respiratory systems.	

9. Teaching and Learning Strategies
Interactive lectures: These lectures involve the use of visual and audio media to illustrate key concepts, with students interacting with the lecturer, asking questions and having discussions. **Case studies:**Present clinical cases and real-life drug-related cases to apply theoretical concepts to real-life cases, encouraging students to think critically and make clinical decisions. **Presentations from students:**Students may be assigned to prepare presentations on specific course topics, enhancing their research, analysis and communication skills.

Demonstrations and illustrative charts: a Use charts and graphs to illustrate pharmaceutical processes and mechanisms of action of drugs.

Virtual presentations: Use technology to provide additional educational resources, such as educational videos and interactive online content.

10. Course structure					
week	**hours**	**Required learning outcomes**	**Name of the unit/topic**	**Teaching method**	**Evaluation method**
1	3	Required learning outcomes	Name of the unit/topic	Lectures using the smart board Scientific discussions	Oral and written exam
2	3	Understanding the effects of medications on central nervous system diseases	Effects of medications on diseases of the central nervous system	Lectures using the smart board Scientific discussions	Oral and written exam
3	3	Understanding the effects of medications on anxiety disorders	Effects of medications on anxiety diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
4	3	Understanding the effects of medications on depression	The effects of medications on depression	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
5	3	Understanding the effects of medications on schizophrenia	Effects of medications on schizophrenia	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
6	3	Understanding the effects of medications on epilepsy	Effects of medications on epilepsy	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
7	3	Understanding the effects of opioids	Opium	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
8	3	Understanding the effects of diuretic medications	Effects of diuretic drugs	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
9	3	Understanding the effects of medications on heart failure	Effects of medications on heart failure diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

10	3	Understanding the effects of medications on high blood pressure	Effects of medications on high blood pressure diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
11	3	Understanding the effects of medications on coronary artery disease	Effects of medications on coronary artery disease	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
12	3	Understanding the effects of medications on blood clotting diseases	Effects of medications on blood clotting diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

11. Learning and teaching resources	
3- Required prescribed books	Lippincott Pharmacology 8th edition
4- Main references (sources)	Clinical Pharmacology Laurence Latest edition
Recommended books and references (scientific journals, reports,.....)	Applied Therapeutics by Koda Kamble Latest edition
Electronic references, Internet sites	**ResearchGate**

12. Course evaluation

Quizzes exam	**Oraly exam**	**Midterm exam**	**practicality**	**Final exam**
2.5	**2.5**	**15**	**20**	**60**

Course Description Form

1. Course Name	Toxicology
2. Course Code	**429**
3. Available attendance forms	**Semester/fourth stage**
4. Semester/year	**Semester II**
5. Number of study hours(total)	**2 theoretical hours and 2 practical hours per week**
6. Description Preparation Date:	**3/17/2024**
7. Name of the course administrator	
the name:Prof. Dr. Mustafa Ghazi Salloum Al-Abbasi **Email:**prof.dr.mustafaghazi@alkafeel.edu.iq	
8. Course objectives	
Studying the principle of exposure to chemicals and various environmental factors, their sources, mechanisms of toxicity, and their danger to humans. It enables students to understand the measures required to protect organisms from suspected toxic hazards.	

9. strategyEducation and learning
1- Increase scientific competence by learning about everything eAndNew in toxicology **2- Relying on modern sources to improve the scientific level** **3- Recognizing laboratory equipment and dealing with laboratory animals**

10. Course structure					
week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Evaluation method
1	2	Introduction concept: general considerations; Host factor, environmental factors with toxic effects.	Introduction: General Considerations; Host factor, environmental factors with toxic effects.	Lectures using the smart board Scientific discussions	Oral and written exam
2	2	Introduction concept: general considerations; Host factor, environmental factors with toxic effects.	Introduction: General Considerations; Host factor, environmental factors with toxic effects.	Lectures using the smart board Scientific discussions	Oral and written exam
3	2	The concept of carcinogenesis	Carcinogenesis	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
4	2	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
5	2	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
6	2	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system,	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system,	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

		cardiovascular, blood.	cardiovascular, blood.		
7	2	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
8	2	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
9	2	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Target organs and systemic toxicology. Respiratory system, liver, kidney, nervous system, cardiovascular, blood.	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
10	2	Toxic substances: food additives and pollutants, pesticides, metals, solvents	Toxic substances: food additives and pollutants, pesticides, metals, solvents	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
11	2	Toxic substances: food additives and pollutants, pesticides, metals, solvents	Toxic substances: food additives and pollutants, pesticides, metals, solvents	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
12	2	Environmental toxicology: air pollution, water and soil pollutants, gases (tear gas, pepper spray), carbon dioxide, cyanide (H2S).	Environmental toxicology: air pollution, water and soil pollutants, gases (tear gas, pepper spray), carbon dioxide, cyanide (H2S).	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

11. Learning and teaching resources	
5- Required prescribed books	Gold Frank Clinical Toxicology
2-Main references (sources)	
Recommended books and references (scientific journals, reports,.....)	Lippincott Pharmacology
Electronic references, Internet sites	ResearchGate

12. Course evaluation				
Quizzes exams	Oraly exam	Midterm exam	practicality	Final exam
2.5	2.5	15	20	60

Course Description Form

1. Course Name	Physiology 1
2. Course Code	214
3. Available attendance forms	Semester/second stage
4. Semester/year	Semester I
5. Number of study hours(total)	3 theoretical hours and 2 practical hours per week
6. Description Preparation Date:	3/17/2024
7. Number of Credit Hours	
Name: A.Prof. Dr. Saad Mashkoor Waleed Email: Saad.alzaiy@alkafeel.edu.iq	

8. Course objectives

1. Understand and explain the functions of organs and systems in the human body.
2. Study the biological interactions and processes that occur within the body and how they are regulated.

9. strategyEducation and learning

Stimulating active participation Encouraging students to actively participate in lessons and discussions can enhance their understanding of the material. Active methods such as interactive presentations, discussion sessions, and collaborative activities can be used to encourage participation.

Use of educational technology Interactive educational media, such as educational videos, computer simulations, and educational software, can be used to illustrate physiological concepts directly and experimentally.

Activate pre-memory: Using examples and practical applications of physiological concepts that students may have previously been exposed to in their daily lives, and linking these concepts to practical experiences can help activate prior memory and facilitate understanding.

Provide multiple links: Linking physiological concepts to clinical situations and practical applications can help students understand the clinical and applied significance of these concepts.

10. Course structure

week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Evaluation method
1	**3**	Cell physiology	The general and cellular basis pf medica physiology	Lectures using the smart board Discussions Scientific	Oral and written exam
2	**3**	Cell physiology	The general and cellular basis pf medica physiology	Lectures using the smart board Discussions Scientific	Oral and written exam
3	**3**	Physiology of nerves	Physiology of nerves and muscles	Lectures using the blackboard Smart Discussions	Oral and written exam

		and muscles		Scientific	
4	**3**	Physiology of nerves and muscles	Physiology of nerves and muscles	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
5	**3**	Physiology of nerves and muscles	Physiology of nerves and muscles	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
6	**3**	Physiology of nerves and muscles	Physiology of nerves and muscles	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
7	**3**	Physiology of nerves and muscles	Physiology of nerves and muscles	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
8	**3**	Respiratory	Respiratory	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
9	**3**	Respiratory	Respiratory	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
10	**3**	Respiratory	Respiratory	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
11	**3**	Real physiology	Real physiology	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam
12	**3**	Real physiology	Real physiology	Lectures using the blackboard Smart Discussions Scientific	Oral and written exam

11. Learning and teaching resources	
6- Required prescribed books	**-Ganong**

7- Main references (sources)	- Guyton and Hall Textbook of Medical Physiology
Recommended books and references (scientific journals, reports,.....)	- Lippincott Medical Physiology
Electronic references, Internet sites	ResearchGate

12. Course evaluation				
Quizzes	Oraly	midterm	practicality	Final exam
2.5	2.5	15	20	60

Course description form

1. Course Name	physiology II
2. Course Code	229
3. Available attendance forms	Semester/second stage
4. Semester/year	Semester II
5. Number of study hours(total)	3 theoretical hours and 2 practical hours per week
6. Date this description was prepared	3/17/2024
7. Number of Credit Hours	
Name: A.Prof. Dr. Saad Mashkoor Waleed Email: Saad.alzaiy@alkafeel.edu.iq	
8. Course objectives	

1. Understanding the basic physiological processes in the human body and how they are organized and regulated to maintain health and internal balance.
2. Providing the basics of understanding and knowledge necessary to understand diseases and disorders that affect normal physiological functions and the mechanisms by which they occur.
3. Enhancing the ability to think critically and analytically regarding medical physiology, and the ability to apply physiological concepts in clinical and practical contexts.
4. Develop practical skills in evaluating normal physiological functions and in diagnosing and treating physiological disorders.
5. Providing scientific foundations for understanding the effect of medications and other treatments on the physiological functions of the human body.

9. strategyEducation and learning
1. Understand the deepest physiological processes related to blood and their importance in the body and enable them to deal with health problems related to blood and interact with research and scientific developments in this field.the field . **2. Enabling students to understand the hormonal systems in the body and how they affect its various functions, enabling them to deal with health problems related to hormones and contribute to providing appropriate health care.** **3. Identify the physiological processes that occur in the digestive system during the digestion of food and the absorption of substancesFood virtual presentations**

10. Course structure					
week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Evaluation method
1	3	Understanding the effects of medications on central nervous system diseases	Effects of medications on diseases of the central nervous system	Lectures using the smart board Scientific discussions	Oral and written exam
2	3	Understanding the effects of medications on anxiety disorders	Effects of medications on anxiety diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
3	3	Understanding the effects of medications on depression	The effects of medications on depression	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
5	3	Understanding the effects of medications on schizophrenia	Effects of medications on schizophrenia	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
6	3	Understanding the effects of medications on epilepsy	Effects of medications on epilepsy	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
7	3	Understanding the effects of opioids	Opium	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
8	3	Understanding the effects of diuretic medications	Effects of diuretic drugs	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
9	3	Understanding the effects of medications on heart failure	Effects of medications on heart failure diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
10	3	Understanding the effects of medications on high blood pressure	Effects of medications on high blood pressure diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

11	3	Understanding the effects of medications on coronary artery disease	Effects of medications on coronary artery disease	Lectures using the blackboard Smart Scientific discussions	Oral and written exam
12	3	Understanding the effects of medications on blood clotting diseases	Effects of medications on blood clotting diseases	Lectures using the blackboard Smart Scientific discussions	Oral and written exam

11. Learning and teaching resources	
Required prescribed books	**-Ganong**
Main references (sources)	**- Guyton and Hall Textbook of Medical Physiology**
Recommended books and references (scientific journals, reports,.....)	**- Lippincott Medical Physiology**
Electronic references, Internet sites	**ResearchGate**

12. Course evaluation

Quizzes	Oraly	Midterm	Practicality	Final exam
2.5	2.5	15	20	60

Course description form

1. Course Name
pharmacology I
2. CodeThe decision
214
3. Semester / Year:
Semester II

4. Description Preparation Date:	
3/17/2024	
5. Available Attendance Forms:	
Semester/third stage	
6. Number of study hours (total)/number of units (total)	
3 hours of theory per week	
7. Number of Credit Hours	
Name: M. Dr. Yahiya Ibrahim Yahiya Email: yahia.alkhazaily@alkafeel.edu.iq	
8. Course objectives	
Objectives of the study subject	1. Studying the introduction to pharmacology and understanding drug kinetics within the human body. This is the study of drug dynamics and their effect on the body. 2. Understanding and studying medications related to the nervous system, the sympathetic and parasympathetic systems, and diseases related to increases and decreases in the levels of acetylcholine and adrenaline, their treatment, and the medications that act on them. 3. Study of medications that treat bacterial, parasitic, fungal, and viral infections and anti-worm medications.
9. Teaching and learning strategies	
The strategy	1. Analysis and Interpretation: Students' ability to analyze theInformation from the body's physiology and its connection to medicationsUnderstand them, and then interpret the resultsAnd use it in various treatments.. 2. Scientific Communication: Enhancing the ability to communicate effectively and clearly about...Modern scienceFor medicinesAnd the development taking place in this field. 3. Problem Solving: Developing problem solving skillThat relate toinDrug interactions and how to develop medications to be more effective and safe for the patient. 4. Teamwork: Enhance the ability to work as a team and intera with colleagues Study in research tasks anddiscussion.

10. Course structure

week	hours	Required learning outcomes	Name of the unit/topic	Teaching method	Evaluation method
1	3	Pharmacokinetics	Familiarity with pharmacokinetics	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
2	3	Mechanism of action of the drug	Familiarity with the mechanism of action of medications	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
3	3	Autonomic nervous system medications	Familiarity with autonomic nervous system medications	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
4	3	Sympathetic system medications	Familiarity with sympathetic system medications	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
5	3	Sympathetic antagonists	Familiarity with sympathetic system antagonists	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
6	3	Parasympathetic drugs	Familiarity with parasympathetic system medications	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam

7	3	Parasympathetic antagonists	Familiarity with parasympathetic antagonists	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
8	3		Mid-term exam	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
9	3	Antibacterials	Familiarity	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
10	3	Antibacterials	Familiarity	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
11	3	Antibacterials	Familiarity	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
12	3	Antagonists Parasites	Familiarity	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
13	3	Anthelmintics	Familiarity	The smart board presents the	Oral and written exam

				problem and discusses finding appropriate solutions	
14	3	Antagonists Viruses	Familiarity	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam
15	3	Antagonists Fungi	Familiarity	The smart board presents the problem and discusses finding appropriate solutions	Oral and written exam

11. Course evaluation

Quizzes	Oraly	Midterm exam	Final exam
5	5	20	70

12. Learning and teaching resources

Required textbooks (methodology, if any)	Lippincott®Illustrated Reviews:Pharmacology-Eighth Edition
Main references (sources)	Pharmacology; Katzung Latest edition
Recommended supporting books and references (scientific journals, reports….)	
Electronic references, Internet sites	

Course description form

1. Name of the course
Pharmacognosy I
2. Course code
2210
3. Semester/year
Chapter II
4. The date this description was prepared
3/24/2023
5. Forms of attendance available for
semester/second stage
6. Number of study hours (total) / number of units (total)
3 hours theoretical and 2 hours practical
7. Name of the course administrator (if more than one name is mentioned)
Email: iq.edu.atu@22ahmd.com Name: Mr. Muhammad Adnan Kazem
8. Objectives of the course
Objectives of the study subject **This course specializes in the study of drugs** **Poisoning caused by:** **In addition to other cases of poisoning resulting from various sources.** **It provides the student with a framework** **years** **Many poisoning problems** **He is unable to comprehend his great destiny** **encountered during pharmacy practice** **And the development of medicines and therapeutic research** **practical life**
9. Teaching and learning strategies **- Presentations using multimedia: Use presentations, pictures, and graphics. Strategy** **Pharmaceutical concepts more clearly and in detail. Illustrations and video clips to illustrate** **- Interactive lectures: These lectures include the use of visual and audio media to illustrate key concepts, with students interacting with the lecturer, asking questions and having discussions.** - **Virtual presentations: Using technology to provide additional educational resources, such as educational videos and interactive online content.**
10. Course structure

week	hours	Outputs Learning required	Name of the unit or topic	Learning method	Evaluation method

Exam Editorial And oral	Using the whiteboard Smart And discussion among students	General introduction: The scope of pharmacognosy and medicinal plants, definitions and basic principles, natural sources of drugs, crude drugs, official and non-official drugs.	Introduction to Drugs	3	The first
Exam Editorial And oral	Using .products the blackboard Smart And discussion Among students	Classification of natural	classification the plants	3	the second
Exam Editorial And oral	Using the whiteboard Smart And discussion Among students	Plant nomenclature and .taxonomy	Somaya the plants	3	the third
Exam Editorial And oral	Using the whiteboard Smart And discussion Among students	Production of crude drugs: Cultivation, collection, drying and storage	Drug production from the plants	3	the fourth
Exam Editorial And oral	using the blackboard Smart And discussion Among students	Deterioration of crude natural products	products Pharmacokinetics	3	Fifth
Exam Editorial And oral	Using products the blackboard Smart And discussion Among students	Chemistry of natural medicine	Installation Chemist	3	VI

Exam Editorial And oral	Using the whiteboard Smart And discussion among students	Quality control: Evaluation of natural products; macroscopic evaluation; physical evaluation; chemical evaluation; biological evaluation; spectroscopic evaluation.	to examine Physics and examinations chemical	3	Seventh
Exam Editorial And oral	using the blackboard Smart And discussion Among students	Phytochemical investigation of herbal products	Investigation Chemist from the plants Herbal	3	VIII
Exam Editorial And oral	Using the whiteboard Smart And discussion Among students	Extraction of the plant material; Separation and isolation of components	Season Materials Active	3	Ninth
Exam Editorial And oral	using the blackboard Smart And discussion Among students	Traditional plant medicines as a source of new drugs.	sources Medicines from the plants	3	The tenth
Exam Editorial And oral	Using fractionation the blackboard Smart And discussion Among students	Bioassay-guided	to examine Sample of the plants	Eleventh 3	
Exam Editorial And oral	using the blackboard Smart And discussion Among students	plant growth regulators.	Growth regulation the plants	Twelfth 3	

11. Course evaluation

الامتحانات اليومية	الامتحانات الشفوية	الامتحانات الشهرية	درجة العملي	الامتحان النهائية
2.5	2.5	15	20	60

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

12. Learning and teaching

resources Required textbooks (methodology, if any)	
(Sources) Main References	**Trease and Evans Pharmacognosy**
Recommended supporting books and references (scientific journals, reports....)	
Electronic references, Internet sites	net,scholar Google

Course description form

1. Name of the course
,Pharmacognosy II: Pharmacognosy III
2. Course code
312, 3210
3. Semester/year
annual
4. The date this description was prepared
3/24/2024
5. Available forms of attendance:
Annual/third stage
6. Number of study hours (total) / number of units (total)
2 hours theoretical and 2 hours practical
7. Name of the course administrator (if more than one name is mentioned)
Email: iq.edu.uokufa@alaam Alaa Muhammad Khalil Name: Eng.
8. Course objectives
This course aims to study the chemistry of other natural products, which **are:** • **Alkaloids and antibiotics. This course also includes the study of** plant therapy **and tissue culture** • **Technologies used to produce natural products.** • **and subject objectives**
9. **Strategic** teaching and learning strategies
Virtual Presentations: Using technology to provide additional educational resources, such as educational videos and interactive online content. **Student Presentations: Students can be assigned to prepare presentations on specific topics in the course, which enhances their research, analysis, and communication skills.**
10. Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
oral test And editorial	Lectures Using the smart board	:Introduction General biosynthesis pathways of secondary metabolites		2	The first

oral n Take a test And editorial		Carbohydrates		2	the second
oral n Take a test And editorial	Lectures Using the smart board	:Glycosides ,Biosynthesis		2	the third
oral n Take a test And editorial	Lectures Using the smart board	:Glycosides Isothiocyanate glycosides; aldehyde glycosides		2	the fourth
oral n Take a test And editorial	Lectures Using the smart board	glycosides; phenolic glycosides; lactone glycosides; Coumarins and chromones.		2	Fifth
oral n Take a test And editorial	Lectures using smart board	Resins and resin combination; tannins		2	VI
oral n Take a test And editorial	Lectures Using the smart board	Lipids: fixed oils and waxes.		2	Seventh
oral n Take a test And editorial	Lectures Using the smart board	Volatile oils: Introduction		2	VIII
oral n Take a test And editorial	Lectures Using the smart board	Chemistry of volatile oils; biosynthesis of volatile oils		2	Ninth
oral n Take a test And editorial	Lectures Using the smart board	Non- medicinal toxic plants.		2	The tenth
oral n Take a test And editorial	Lectures Using the smart board	Vitamins and Amino acids.		Eleventh 2	

oral n Take a test And editorial	Lectures Using the smart board	Ketones as volatile oils		2 th	twelfth
oral n Take a test And editorial	Lectures Using the smart board	:Alkaloids Introduction		Thirteenth	2
oral n Take a test And editorial	Lectures using smart board	Physical and chemical properties; pyridine,		Fourteenth	2
oral n Take a test And editorial	Lectures Using the smart board	Alkaloids: Quinoline tropan alkaloids		2	Fifth ten
oral n Take a test And editorial	Lectures Using the smart board	Alkaloids: Steroidal alkaloids; lupinane alkaloids		2	VI ten
oral n Take a test And editorial	Lectures Using the smart board	Natural: Antibiotics sources		XVII	2
oral n Take a test And editorial	Lectures Using the smart board	biosynthetic pathways, isolation and purification.		Eighteenth	2
oral n Take a test And editorial	Lectures Using the smart board	phytotherapy Introduction:		nineteenth	2
oral n Take a test And editorial	Lectures Using the smart board	principles, medicinal plants in selected health care systems		2	twenty
oral n Take a test And editorial	Lectures Using the smart board	important natural products		Twenty-one	2

two Twenty	2		phytomecines used in pharmacy & medicine	Lectures Using the smart board	oral test And editorial
third Twenty	2		alkaloids; tropane alkaloids	Lectures Using the smart board	oral test And editorial

11. Course evaluation

الامتحان النهائية	درجة العملي	الامتحانات الشهرية	الامتحانات الشفوية	الامتحانات اليومية
60	20	15	2.5	2.5

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

12. Learning and teaching

;Pharmacognosy Evans and Trease	resources Required textbooks (methodology, if any)
Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition. Robbers JE, Speedie MK, Tyler VE (Eds.); Pharmacognosy and Pharmacobiotechnology; the latest edition. Michael Heinrich, Joanne Barnes; Fundamentals of Pharmacognosy & Phytotherapy.	(Sources) Main References
	Recommended supporting books and references (scientific journals, reports...)
scholar Google	Electronic references, Internet sites

Course description form

1. Name of the course
Democracy
2. Course code
3. Semester/year
Chapter One
4. The date this description was prepared
3/24/2024
5. Available forms of attendance for the
semester of the second stage
6. Number of study hours (total) / number of units (total)
1 hour
7. Name of the course officer (if more than one name is mentioned) Name:
Email: com.gmail@drgelawialkafeel M.D. Jalawi Sultan Al-Khuzaie
8. Objectives of the course

-1 To have knowledge of the cultural field. 2- To have knowledge in the political field and the type of political systems in the world. 3- To have knowledge of legislative elections, types of voting, and electoral systems.	**Objectives of the study subject**

9. **Strategic** teaching and learning

-1 Scientific research. -2 theoretical lectures.	strategies

10. Course structure

1. Course structure

week	hours	Required learning outcomes	Name of the unit/topic	Teaching method and evaluation method	
1	1		The concept of	Lectures	Exam Editorial
2	1		democracy and types of political systems in terms of exercising power	Lectures	Written exam
3	1		The establishment of the parliamentary system and its reconciliation with the democratic principle	Lectures	Written exam
4	1		Characteristics of the parliamentary system, lectures		Exam Editorial
5	1		Organizing the parliamentary body	Lectures	Exam Editorial
6	1		Types of voting and election systems	Lectures	Written exam
7	1		The concept of the relationship between authorities	Lectures	Written exam
8	1		The parliamentary system and its characteristics	Lectures	Written exam
9	1		The parliamentary system in England,	Lectures	Written exam
10	1		the presidential system and its characteristics	Lectures	Written exam
11	1		The presidential system in the United States of America	Lectures	Written exam
12	1		Mixed system and its characteristics	Lectures	Written exam
13	1		Mixed system in France	Written exam lectures	
14	1		Political parties, their elements, and their establishment	Exam lectures	Editorial
15	1		The functions of political parties and their divisions	Exam lectures	Editorial

.11

Headquarters evaluation

الامتحان النهائية	الامتحانات الشهرية	الامتحانات الشفوية	الامتحانات اليومية
70	20	5	5

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.	
12. Learning and teaching resources	
1- The concept of democracy 2- Human	Required textbooks (methodology, if any)
rights in Iraq, the democratic approach	Main references (sources)
	Recommended books and supporting references (scientific journals, reports....)
net	Electronic references, Internet sites

Course description form

1. Name of the course
Baath Party crimes
2. Course code
3. Semester/year
The first/second stage
4. The date this description was prepared
3/24/2024
5. Available forms of attendance:
semester/partial
6. Number of study hours (total) / number of units (total)
1 hour
7. Name of the course administrator (if more than one name is mentioned) Name: M.D. Jalawi Sultan Al-Khazali
Email: com.gmail@drgelawialkafeel
8. Objectives of the course

1 - The student's knowledge skill of the concept of crimes 2 - The student's knowledge skill of psychological crimes and crimes of power 3 - The student's knowledge skill of environmental crimes And international crimes 4 - And human rights violations	**Objectives of the study subject**

9. **Strategic** teaching and learning strategies	
Using the smart board, discussions, and preparing reports by students	
10. Course structure	

1. Course structure

Teaching method and evaluation method		Name of the unit/topic	Required learning outcomes	hours	week
Theoretical exam	lectures	A historical introduction to the party Resurrection		1	1
Theoretical exam	Lectures	Definition of crimes linguistically and terminologically		1	2
Theoretical exam	lectures	Social crimes, psychological		1	3
Lectures, theoretical exam,		crimes, political crimes,		1	4
lectures, theoretical exam,		crimes of authority and		1	5
theoretical exam	Lectures	government		1	6
Theoretical exam	Lectures	Crimes of freedom of religion and belief		1	7
Theoretical exam	Lectures	The crime of confiscation of funds		1	8
Theoretical exam	Lectures	The crime of immigration		1	9
Theoretical exam	Lectures	Environmental crimes		1	10
Theoretical exam	Lectures	International crimes		1	11
Theoretical exam	Lectures	Human rights violations		1	12
Theoretical exam	Lectures	Drying the marshes		1	13
Theoretical exam	Lectures	Dredging palm groves and marshes		1	14
Theoretical exam	Lectures	**Mass grave crimes**		1	15

.11 Course evaluation

الامتحانات اليومية	الامتحانات الشفوية	الامتحانات الشهرية	الامتحان النهائية
5	5	20	70

Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc.	
12. Learning and teaching resources	
Baath Party crimes in Iraq	Required textbooks (methodology, if any) Main
	references (sources)
	Recommended supporting books and references (scientific journals, reports...)
Google	Electronic references, Internet sites

Course description form

1. Name of the course
Arabic
2. Course code
3. Semester/year
The first/first stage
4. The date this description was prepared
3/24/2024
5. Available forms of attendance
quarterly
6. Number of study hours (total) / number of units (total)
2 hours
7. Name of the course administrator (if more than one name is mentioned) Email: iq.edu.alkafeel@karar Name: M.M. Karar Sadiq Al-Alaq
8. Objectives of the course

1 - Empowering the student linguistically, rhetorically, and literary. 2- Knowing the impact of language on societies, especially Islamic ones. -3 Understanding the Arabic language is a sound path to understanding the Holy Quran.	**Objectives of the study subject**

9. **Strategic** teaching and learning strategies	
-1 theoretical lectures -2 Homework assignments. -3 class contributions. -4 Desk research.	
10. Course structure	

1. Course structure

Teaching method and evaluation method	Name of the unit/topic	Required learning outcomes	hours	week
Class performance and exams Lectures	A general introduction to the Arabic language and an explanation of the parts of speech		2	1
Class performance and exams Lectures	The Arabized, the built, the Muthanna and its parsing		2	2
Class performance and exams Lectures	The sound masculine plural and the sound feminine plural		2	3
Class performance and exams Lectures	What is prohibited from morphology, the five nouns, and the five verbs		2	4
Class performance and exams	Arabic calligraphy concept and types, lectures		2	5
Class performance and exams Lectures	The parsing of the defective form of nouns and the parsing of the defective form of verbs		2	6
Class performance and exams Lectures	Rules for writing hamza		2	7
Class performance and exams	Lunar pain and solar pain, lectures		2	8
Class performance and exams Lectures	Punctuation marks in Arabic writing		2	9
Class performance and exams Lectures	The audio and written passages in the Arabic language		2	10
Class performance and exams	Modal verbs (kan and her sisters) Lectures		2	11
Class performance and exams Lectures	Letters similar to the verb (inna and its sisters)		2	12
Class performance and exams Lectures	Rules for writing numbers		2	13
Class performance and exams Lectures	Original and subsidiary grammatical marks		2	14

11. Course evaluation

الامتحانات اليومية	الامتحانات الشفوية	الامتحانات الشهرية	الامتحان النهائية
5	5	20	70

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

.12 Learning and teaching resources

Explanation of Ibn Aqeel on Al-Fiyah Ibn Malik	Required prescribed books (methodology, if any)
Clearest Paths/Ibn Hisham Al-Baghiha: Our Nouns and Our Annihilations / Fadl Hassan Abbas	Main references (sources)
University theses and dissertations	Recommended supporting books and references (scientific journals, reports...)
The Abbasid Holy Library Al-Haydariyya Library, , Comprehensive library	Electronic references, Internet sites

Course description form

1. Name of the course
the computer
2. Course code
3. Semester/year
Annual first stage / second stage
4. The date this description was prepared
5. Available forms of attendance annually
6. Number of study hours (total) / number of units (total)
1 hour theoretical and 1 hour practical
7. Name of the course administrator (if more than one name is mentioned) Email:
iq.edu.alkafeel@bageresam Name: M.M. Baqir Essam, telephone
8. Objectives of the course

The student acquires basic concepts about the computer (its components and how it works) **The student acquires the ability to deal with the Windows operating system efficiently** **The student acquires the skill to deal with electronic platforms and the ability to take the exam** **Students acquire the skill and ability necessary to deal with office programs Microsoft office**	**Objectives of the study subject**

9. Teaching and learning strategies 1-	
Writing, formatting, saving and printing texts. - Preparing electronic tables and writing mathematical and statistical formulas and equations 3- Preparing the presentation, coordinating it, and controlling the way it is presented. 4 - Use search engines via the Internet efficiently. 5 - Create an e-mail and use it to send and receive various messages and files	**Strategy** 2
10. Course structure	

1. Course structure

Teaching method and evaluation method		Name of the unit/topic	Required learning outcomes	hours	week
Practical theoretical exam	Lectures	Introduction to statistical computing in Microsoft excel	Introduction to statistical computing in Microsoft excel	2	1
Practical theoretical exam	analysis data lectures		Data analysis	2	2
Practical theoretical exam	Lectures	How to computer statistics such	How to calculate these	2	3
Practical theoretical exam	Lectures	Formula errors in excel	statistics Errors in formulas Excel	2	4
Practical theoretical exam	Lectures	Accessing the data analysis tools	Access to tools data analysis	2	5
Practical theoretical exam	Lectures	Anova test one sample	Anova test Without	2	6
Practical theoretical exam	Lectures	Anova: two-Factor without replication	repeated Anova test Double operation without repetition	2	7
Practical theoretical exam	Lectures	Anova: two-Factor with replication Practical Classes in Chemistry	Anova test Binary operation with replication	2	8
Practical theoretical exam	Lectures	T-test one sample T-test paired T-test independent	Single sample test Paired test Independent test	2	9
Practical theoretical exam	Lectures	Introduction to program. program BioChemOffice	Program introduction BioChemOffice	2	10

.11 Course evaluation

الامتحان النهائية	درجة العملي	الامتحانات الشهرية	الامتحانات الشفوية	الامتحانات اليومية
60	20	15	2.5	2.5

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

12. Learning and teaching

MOS	resources Required textbooks (methodology, if any)

Study guide for Microsoft Excel	
PART introduction 2016 Excel 1formulas , functins and formatting , Stephen Moffat – Microsoft Office Power Point 2016 torbane lago frandsen	Main references (sources)
	Recommended supporting books and references (scientific journals, reports..)
	Electronic references, Internet sites

Course description form

1. Name of the course
Mathematics and biostatistics
2. Course code
115
3. Semester/year
Chapter One
4. The date this description was prepared
3/24/2024
5. Available forms of attendance
for the semester/first stage
6. Number of study hours (total) / number of units (total)
3 hours a week
7. Name of the course administrator (if more than one name is mentioned)
Email: iq.edu.uokufa@salmam.abbasm Name: Prof. Dr. Abbas Muhammad Salman
8. Objectives of the course

• **Work to encourage and stimulate thinking Logically based on conclusions and evidence.** • **Work to encourage and stimulate thinking Logically based on conclusions and evidence.**	**Objectives of the study subject**

9. Teaching and learning strategies

gives students the ability to deal with the concept of mathematics and statistics, emphasizes the knowledge and skill necessary to efficiently perform the duties And and responsibilities of a pharmacist. The course deals with the concept of basic mathematics and the application of biostatistics in the medical field. Upon completion of the course, the student will be able to understand applications of statistics in the medical field	**The strategy**

10. Course structure

Evaluation method	Learning method	Name of the unit or topic	Outputs Learning required	hours	week
Exam Oral And editorial	Lectures using the blackboard Smart	Mathematics and Biostatistics Mathematics: General concepts; coordinate and graph in plane; inequality; absolute value or magnitude; function and their graphs		3	The first
Exam Oral And editorial	Lectures Using the whiteboard Smart	displacement function; slope and equation for lines.		3	the second
Exam Oral And editorial	Lectures Using the whiteboard Smart	Limits and continuity: Limits; theorem of limits; limit. limit involving infinity; continuity; continuity conditions		3	the third
Exam Oral And editorial	Lectures Using the whiteboard Smart	Derivatives: Line tangent and derivatives; differentiation rules		3	the fourth
Exam Oral And editorial	Lectures Using the whiteboard Smart	derivative of trigonometric function; practice exercises		3	Fifth
Exam Oral And editorial	Lectures Using the whiteboard Smart	Integration: Infinite integrals; rules for infinite integrals; integration		3	VI
Exam Oral And editorial	Lectures using	formulas for basic trigonometric function; definite integrals; properties of definite integrals; practice exercises		3	Seventh

	the blackboard Smart				
Exam Oral And editorial	Lectures Using the whiteboard Smart	Biostatistics: General concepts of statistics; statistical methods; statistical theory; applied statistics; statistical operations.		3	VIII
Exam Oral And editorial	Lectures using the blackboard Smart	Probability concepts: Properties of probability; Set theory and set notation (basic notation); counting techniques-permutations and combinations		3	Ninth
Exam Oral And editorial	Lectures Using the whiteboard Smart	calculating the probability of an events; probability distribution of discrete variable; binomial distribution, Poisson distribution; Probability distribution continues and normal distribution, review questions and exercises		3	The tenth
Exam Oral And editorial	Lectures Using the whiteboard Smart	The concept of central tendency: Meaning of sample and mean of population; median; mode. mode		3	atheistic ten
Exam Oral And editorial	Lectures Using the whiteboard Smart	measure of central tendency; Review questions and exercises.		3	the second ten

11. Course evaluation

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

12. Learning and teaching

	resources Required textbooks (methodology, if any)

1:Finny RI, Thomas GB (Eds.); Calculus and Analytical Geometry	(Sources) Main References
	Recommended supporting books and references (scientific journals, reports...)
scholar google	Electronic references, Internet sites