

Course Description Form

1. Course Name:	
Public health/ theory	
2. Course Code:	
PH4105	
3. Semester / Year:	
First semester/ fourth	
4. Description Preparation Date:	
2025-2026	
5. Available Attendance Forms:	
Full-time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hr x 15 weeks = 30 hrs/ 2units	
7. Course administrator's name (mention all, if more than one name)	
Name: Moatasem Al-Salih Email: moatasem.alsalih@alayen.edu.iq	
8. Course Objectives	
Course Objectives	1. Fundamental Concepts: Understand public health principles, scope, and global impact. 2. Epidemiology & Disease Control: Analyze disease transmission, prevention, and epidemiological methods. 3. Public Health Interventions: Identify strategies for health promotion, vaccinations, and environmental health. 4. Healthcare Systems & Policies: Examine health services organization, insurance, and health determinants. 5. Data & Ethics: Interpret epidemiological data, apply quality assurance, and uphold ethical standards. 6. This course empowers students to contribute effectively to community health and policy development.

9. Teaching and Learning Strategies

Strategy	1-lectures included multimedia lectures 2- Power Point presentation 3- practical work 4- open discussion
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10. Course Structure

Week	Hours	Intended Learning Outcomes (ILOs)	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	Understand public health scope, core concerns, determinants, challenges, and societal impact.	Introduction: The Scope and Concerns of Public Health	1. Whiteboard, PowerPoint, and data show presentation 2. Class discussion 3. Presentation of cases 4. Handouts 5. Visual aids (pictures, charts, graphs, diagrams)	1. Short MCQs 2. Oral exam and direct questions in class 3. Midterm exam 4. Electronic exams on the online platform 5. Final exam
2	2	Understand epidemiology principles, population screening methods, benefits, limitations, and applications.	Epidemiology & Population Screening		
3	2	Understand preventive medicine principles, disease prevention strategies, and control measures.	Prevention & Control of Disease (Preventive Medicine)		
4	2	Understand health insurance systems, organization of health services, access, efficiency.	Health Insurance (Organization of Health Services)		
5	2	Understand gastrointestinal infection transmission, communicable diseases, prevention, and control measures.	Communicable Diseases (Transmission of Infection Acquired Through the Gastrointestinal Tract)		

6	2	Apply control measures to prevent gastrointestinal infections and reduce disease transmission.	Control of Infection Acquired Through the Gastrointestinal Tract		
7	2	Understand transmission through mucous membranes and apply effective infection control measures.	Transmission & Control of Infection Acquired Through Mucous Membranes		
8	2	Understand airborne infection transmission routes, risk factors, prevention, and control strategies.	Transmission of Airborne Infections		
9	2	Apply effective measures to control airborne infections and reduce transmission risks.	Control of Airborne Infections		
10	2	Understand chronic diseases, public mental health, impacts, prevention, and health promotion.	Non-Communicable Diseases (Chronic Disease, Public Mental Health)		

11. Course Evaluation

Written exam 70 marks

Midterm 20 marks

Course work 10 marks

Total =100 marks

12. Learning and Teaching Resources

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

Course Description Form

1. Course Name:	
Biopharmaceutics	
2. Course Code:	
PH4104	
3. Semester / Year:	
First semester/ fourth year	
4. Description Preparation Date:	
2025-2026	
5. Available Attendance Forms:	
Full-time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours/week (theoretical), 2 hours/week (practical), total units = 3	
7. Course administrator's name (mention all, if more than one name)	
Name: Lecturer Dr. Samer Khalid Ali Email: Samer.ali@alayen.edu.iq	
8. Course Objectives	
Course Objectives	This course deals with the physical and chemical properties of drug substances, dosage form and the biological effectiveness of the drug or drug product upon administration (route of administration), including drug availability in the human body from a given dosage form. The pharmacokinetic part of the course deals with the time-course of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states. Also, it concerns with the main processes of drug journey absorption, distribution, metabolism and excretion.
9. Teaching and Learning Strategies	
Strategy	Lectures and Presentation, Interactive discussions related photos and videos, brainstorm, and Inverted classrooms with learning strategies
10. Course Structure (Theory)	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Describe Biopharmaceutics and Pharmacokinetics	Introduction to Biopharmaceutics and Pharmacokinetics	smartboard/ Presentation slides/ discussion	oral questions and written exams
2	2	Understand biopharmaceutics standards, drug absorption, and mechanisms absorption	Biopharmaceutics standards: Drug absorption and its mechanism	smartboard/ Presentation slides/ discussion	oral questions and written exams
3	2	Explain absorption kinetics and factors affecting drug absorption	Absorption kinetics: Factors effect absorption	smartboard/ Presentation slides/ discussion	oral questions and written exams
4	2	Describe physicochemical factors affecting drug absorption, including the effects of drugs and different additives	Physicochemical Factors effect on absorption: Effect of drug and different additives	smartboard/ Presentation slides/ discussion	oral questions and written exams
5	2	Analyze the impact physicochemical factors and	Physicochemical factors effect on absorption: Effect of different	smartboard/ Presentation slides/ discussion	oral questions and written

		different additives absorption from various dosage forms.	additives on different dosage forms		exams
6	2	Understand the one– compartment system and apply the one– compartment model for oral and intravenous administration.	One compartment system: The one comp model for oral and intravenous injections	smartboard/ Presentation slides/ discussion	oral questions and written exams
7	2	Explain multi– compartment systems, focusing on two– compartment models for oral and intravenous dose	Multi–compartment system: Two– compartment models for oral and intravenous doses	smartboard/ Presentation slides/ discussion	oral questions and written exams
8	2	Describe oral absorption kinetics, including zero–order and first–order absorption kinetics	Oral absorption kinetic: The zero and first oral absorption kinetic	smartboard/ Presentation slides/ discussion	oral questions and written exams
9	2	Understand	Multiple oral Dosage	smartboard/	oral

		multiple oral dosage kinetics and explain how steady-state (plateau) concentration achieved.	kinetic: How to reach a plateau	Presentation slides/ discussion	questions and written exams
10	2	Explain nonlinear kinetics and identify the reasons nonlinear absorption and metabolism.	Nonlinear kinetics: Reasons for nonlinear Absorption metabolism	smartboard/ Presentation slides/ discussion	oral questions and written exams
11	2	Understand bioavailability concepts, including absolute and relative bioavailability, and bioequivalence	Different bioavailability: Bioavailability and equivalences	smartboard/ Presentation Slides /discussion	oral questions and written exams
12	2	Describe drug elimination the liver and kidneys, including theories hepatic and renal drug elimination.	Elimination via liver and kidney; Theories of drug Elimination through kidney and liver	smartboard/ Presentation slides/ discussion	oral questions and written exams
13	2	Explain	Protein binding of	smartboard/	oral

		protein binding drugs and pharmacokinetic significance.	drugs	Presentation Slides /discussion	questions and written exams
14	2	Apply dose adjustment rules in patients with renal failure	Dose adjustment in renal failure patient: Rules to adjust doses in renal failure	smartboard/ Presentation slides/ discussion	oral questions and written exams

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Shargel L., Yu AB., (Eds). Applied Biopharmaceutics and Pharmacokinetics
Main references (sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3rd ed. Michael E. Aulton (Author) Churchill
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Clinical Pharmacy 1	
2. Course Code:	
Clinical Pharmacy 1/PH4103	
3. Semester / Year:	
1 nd semester / 4 th stage	
4. Description Preparation Date:	
25/1/2025	
5. Available Attendance Forms:	
Full-time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
4 hours/3 units: 30hrs theoretical / 2 units 30hrs Practical / 1 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Thaer Lateef Gabar Email: Thaer.lateef@alayen.edu.iq	
8. Course Objectives	
Course Objectives	1. After completing the course, the student must acquire sufficient knowledge of the concepts of the main skills of pharmaceutical care services, basic skills in practicing pharmacy for various purposes and developing treatment plans for chronic diseases 2. Providing students with the knowledge and skills necessary to make evidence-based treatment decisions in real clinical situations 3. Promote a deep understanding of drug interactions, doses, and monitoring parameters to achieve the best therapeutic results. 4. Instill the importance of individualizing treatment plans according to the needs of each individual patient, taking into account factors such as age, chronic diseases, and lifestyle. 5. Develop the ability to critically evaluate clinical data, identify medication-related problems, and suggest appropriate interventions. 6. To learn about recent research and guidelines related to diseases to ensure that students are always aware of the latest developments in this field.
9. Teaching and Learning Strategies	
Strategy	1- Whiteboard, multimedia lectures, power point presentation 2- Class discussion 3- Case-based study 4- Handouts 5- Brainstorming 6- Problem solving 7- Case simulation in lab 8- Web site Internet evidence-based learning

		9-Role play 10-Flipped learning class			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	This lecture aims to enable students to differentiate between prescription and over-the-counter medications, appropriately respond to patient symptoms in the community pharmacy setting, and apply general principles for patient referral to physicians when necessary.	An Introduction to Community Pharmacy	1- Whiteboard, multimedia lectures, power point presentation 2- Class discussion 3- Case-based study 4- Handouts 5- Brainstorming 6-Problem solving 7-Role play 8- Evidence-based medicine internet based learning	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5-Practical exam 6- Final exam
2	2	This lecture aims to equip students with the ability to recognize the etiology and symptoms of common minor respiratory conditions, identify warning signs that require medical referral, recommend appropriate nonpharmacologic and OTC pharmacologic treatments, and provide effective patient counseling.	Respiratory problems		
3	2	This lecture focuses on enabling students to assess common minor gastrointestinal disorders, recognize symptoms requiring referral, recommend suitable nonpharmacologic and OTC treatments, and counsel patients on	GIT problems		

		proper medication use.			
4	2	This lecture aims to develop students' skills in managing common minor pediatric conditions by recognizing symptoms, determining when referral is required, recommending appropriate nonpharmacologic and OTC therapies, and providing caregiver-focused counseling.	Childcare practice		
5	2	This lecture enables students to identify common minor skin disorders, recognize referral criteria, recommend appropriate nonpharmacologic and OTC treatments, and deliver proper patient counseling for dermatologic conditions.	Skin diseases		
6	2	This lecture aims to prepare students to manage common minor women's health problems by recognizing symptoms, identifying referral needs, recommending nonpharmacologic and OTC pharmacologic options, and providing patient-centered counseling.	Women's health		
7	2	This lecture focuses on enabling students to assess common minor CNS conditions, identify symptoms requiring	CNS problems		

		referral, recommend appropriate nonpharmacologic and OTC treatments, and counsel patients on safe medication use.			
8	2	This lecture aims to train students to recognize common minor eye conditions, identify red-flag symptoms, recommend appropriate nonpharmacologic and OTC therapies, and provide correct patient counseling.	Eye problems		
9	2	This lecture enables students to manage common minor ENT conditions through symptom assessment, referral decision-making, selection of appropriate treatments, and effective patient counseling.	ENT problem		
10	2	This lecture focuses on identifying common minor oral conditions, recognizing when referral is needed, recommending suitable nonpharmacologic and OTC treatments, and counseling patients on oral hygiene practices.	Oral health		
11	2	This lecture aims to enable students to understand the etiology and complications of obesity, recognize the benefits of weight reduction, recommend nonpharmacologic and OTC	Obesity and body control weight		

		interventions, and provide appropriate patient counseling.			
12	2	This lecture prepares students to assess pain and musculoskeletal complaints, recognize referral criteria, recommend appropriate nonpharmacologic and OTC pharmacologic treatments, and counsel patients effectively.	Pain and disorders of the musculoskeletal system		
13	2	This lecture aims to develop students' understanding of smoking-related health risks, benefits of smoking cessation, theoretical models of behavior change, and appropriate use of nicotine replacement therapy.	Nicotine replacement therapy		
14	2	This lecture enables students to evaluate dietary supplements by understanding their market, regulations, safety concerns, and issues related to quality and efficacy.	Nutritional supplements		
15	2	This lecture aims to familiarize students with recent changes in OTC drug classification and appropriate usage guidelines for newly reclassified medications.	Revision and Update in Reclassification of OTC Drugs		

13.Course Evaluation

15% Midterm exam, 20% practical , 5% (Quizzes, attendance, active participation in class, assignment), 60 % final exam

14.Learning and Teaching Resources

Required textbooks (curricular books, if any)	ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 8th.edition Lor waterfield, Community Pharmacy Hand Book
Main references (sources)	ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 8th.edition Lor waterfield, Community Pharmacy Hand Book
Recommended books and references (scientific journals, reports...)	Journal of Clinical pharmacy and therapeutics
Electronic References, Websites	UpToDate Lexicomp Medscape Drugs.com

Course Description Form

1. Course Name:	
Clinical Pharmacy 2	
2. Course Code:	
Clinical Pharmacy II/PH4203	
3. Semester / Year:	
2 nd semester / 4 th stage	
4. Description Preparation Date:	
2025-2026	
5. Available Attendance Forms:	
Full-time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
4 hours/ 3 units: 30hrs theoretical / 2 units 30hrs Practical / 1 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Thaer Lateef Gabar Email: Thaer.lateef@alayen.edu.iq	
8. Course Objectives	
Course Objective	1. After completing the course, the student must acquire sufficient knowledge of the concepts of the main skills of pharmaceutical care services, basic skills in practicing pharmacy for various purposes and developing treatment plans for chronic diseases 2. Providing students with the knowledge and skills necessary to make evidence-based treatment decisions in real clinical situations 3. Promote a deep understanding of drug interactions, doses, and monitoring parameters to achieve the best therapeutic results. 4. Instill the importance of individualizing treatment plans according to the needs of each individual patient, taking into account factors such as age, chronic diseases, and lifestyle. 5. Develop the ability to critically evaluate clinical data, identify medication-related problems, and suggest appropriate interventions. 6. To learn about recent research and guidelines related to diseases to

ensure that students are always aware of the latest developments in this field.

9. Teaching and Learning Strategies

Strategy	1– Whiteboard, multimedia lectures, power point presentation 2– Class discussion 3– Case-based study 4– Handouts 5– Brainstorming 6–Problem solving 7– Case simulation in lab
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	This lecture enables students to differentiate between chronic stable angina and acute coronary syndromes, recognize clinical presentations and diagnostic criteria, identify treatment goals, design patient-specific treatment regimens, and monitor therapeutic outcomes.	Ischemic heart disease	1- Whiteboard, multimedia lectures, power point presentation 2- Class discussion 3- Case-based study 4- Handouts 5- Brainstorming 6-Problem solving 7-Role play 8- Evidence-based medicine internet based learning	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5-Practical exam 6- Final exam
2	2	This lecture aims to develop students' ability to classify heart failure syndromes, understand underlying pathophysiology, recognize clinical manifestations, establish treatment goals, and design evidence-based pharmacologic and	Heart failure		

		nonpharmacologic management plans with appropriate monitoring.			
3	2	This lecture prepares students to identify treatment goals, risk factors, and diagnostic criteria for hypertension, recommend lifestyle and pharmacologic interventions, individualize therapy, and develop monitoring plans to assess blood pressure control and adverse effects.	Hypertension		
4	2	This lecture enables students to understand the pathophysiology and clinical presentation of asthma, define treatment goals, select appropriate pharmacotherapy and delivery devices, develop asthma action plans, and individualize management for different age groups.	Asthma		
5	2	This lecture prepares students to assess patients with COPD, establish treatment goals, design maintenance and exacerbation management plans, implement	COPD		

		monitoring strategies, and provide patient education.			
6	2	This lecture aims to develop students' ability to differentiate types of diabetes, apply diagnostic criteria, establish therapeutic goals, recommend lifestyle and pharmacologic interventions, manage acute complications, and design comprehensive monitoring plans.	DM		
7	2	This lecture aims to enable students to recognize the causes, clinical manifestations, and diagnostic evaluation of anemia and sickle cell disease, develop patient-specific treatment regimens, compare therapeutic options, and design appropriate monitoring plans to assess treatment outcomes.	Anemia		
8	2	This lecture focuses on differentiating ulcer etiologies, selecting appropriate eradication and treatment regimens, managing NSAID-related complications, and	Peptic ulcer		

		developing patient-specific monitoring plans.			
9	2	This lecture aims to familiarize students with the pathophysiology, clinical presentation, causative organisms, treatment goals, and initial management strategies for Meningitis .	Meningitis		
10	2	This lecture enables students to assess tuberculosis risk factors, select appropriate diagnostic tests, design treatment regimens for latent and active disease, monitor therapy effectiveness and safety, and identify patients requiring therapeutic drug monitoring.	Tuberculosis		
11	2	This lecture focuses on diagnosing UTIs, differentiating upper and lower tract infections, selecting appropriate empiric and culture-directed therapy, and developing individualized treatment and monitoring plans.	Urinary tract infection		
12	2	This lecture focuses on identifying risk factors, diagnostic criteria, fracture	Osteoporosis		

		prevention strategies, selecting appropriate therapies, and developing monitoring plans for Osteoporosis .			
13	2	This lecture aims to develop students' ability to understand disease pathophysiology, recognize clinical presentations, establish treatment goals, design pharmacologic and nonpharmacologic treatment plans, and monitor therapy effectiveness and safety for Rheumatoid arthritis .	Rheumatoid arthritis		
14	2	This lecture enables students to identify risk factors, manage acute and chronic gout, select urate-lowering therapy, develop monitoring plans, and counsel patients on lifestyle modifications and prevention strategies for gout.	Gout		
15	2	This lecture is a review of the major points for what have been taken.	Revision		
11. Course Evaluation					
15% Midterm exam, 20% practical , 5% (Quizzes, attendance, active participation in class, assignment), 60 % final exam					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)					

	1- Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy handbook 11th Edition. 2- Chisholm-Burns, Marie A., Patrick M. Malone, Terry L. Schwinghammer, Jill M. Kolesar, Barbara G. Wells, and Joseph T. DiPiro. Pharmacotherapy principles & practice. 6th edition. Roger Walker, Clive Edwards (eds), Clinical Pharmac Therapeutics
Main references (sources)	1- Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy handbook 11th Edition. 2- Chisholm-Burns, Marie A., Patrick M. Malone, Terry L. Schwinghammer, Jill M. Kolesar, Barbara G. Wells, and Joseph T. DiPiro. Pharmacotherapy principles & practice. 6th edition 3. Pharmacotherapy casebook: a patient focused approach,Mcgraw Hill) 4- Roger Walker, Clive Edwards (eds), Clinical Pharmac Therapeutics 6th edition.
Recommended books and references (scientific journals, reports...)	② Journal of Clinical pharmacy and therapeutics
Electronic References, Websites	UpToDate Lexicomp Medscape Drugs.com

Course Description Form

1. Course Name:					
Communication skills					
2. Course Code:					
PH4206					
3. Semester / Year:					
Second semester/ Fourth level					
4. Description Preparation Date:					
2025-2026					
5. Available Attendance Forms:					
Full-time and official attendance hours					
6. Number of Credit Hours (Total) / Number of Units (Total)					
15h*2 =30hrs / 2 unit					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Mohammed kadhém Abid Email: Mohammedk.A.K@alayen.edu.iq					
8. Course Objectives					
Course Objectives		1. Enable the graduating student to communicate effectively with patients and utilize all available means of communication with both patients and physicians throughout the medical treatment process. 2. Empower the graduating student to educate patients regarding medications they are using, including providing them with the gi medication instructions, and overcoming any difficulties or obstacles hindering the delivery of these instructions to them.			
9. Teaching and Learning Strategies					
Strategy		1- Whiteboard, multimedia lectures, power point presentation 2- Class discussion 3- Presentation of cases of ethical dilemmas 4- Handouts 5- Brainstorming 6- Problem solving			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	1. Describe the pharmacist's responsibilities in delivering	Patient-centered communication in pharmacy practice	1- Whiteboard, multimedia lectures,	1- Short MCQs 2- Oral exam and

		patient-centered care. 2. Explain the importance of effective communication in fulfilling patient care responsibilities. 3. Define patient-centered care and its role in pharmacy practice. 4. Understand medication use from the patient's perspective, including beliefs, concerns, and preferences. 5. Promote active patient involvement in therapeutic monitoring and treatment decisions. 6. Describe the medication use process using a patient-centered approach.		power point presentation 2- Class discussion 3- Presentation of cases of ethical dilemmas 4- Handouts 5- Brainstorming 6- Problem solving	direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam 6. Reports and Assignments
2	2	1. Identify the key components of the interpersonal communication model. 2. Describe individual roles and responsibilities within the communication process.	Principles and basics of interpersonal communication		

		3. Explain how meaning is constructed and interpreted during message exchange. 4. Discuss the role of perception and its impact on effective communication.			
3	2	1. Differentiate between verbal and nonverbal communication and explain their roles in effective interaction. 2. Identify key elements of nonverbal communication , including body language, facial expressions, and tone. 3. Recognize distracting nonverbal behaviors that may interfere with clear communication. 4. Interpret nonverbal cues in others to enhance understanding and empathy. 5. Apply appropriate communication strategies when addressing sensitive or difficult issues. 6. Demonstrate techniques to	Nonverbal communication		

		minimize or overcome distracting nonverbal factors during interactions.			
4	2	1. Identify environmental factors that act as barriers to effective communication. 2. Recognize personal barriers that interfere with clear and effective communication. 3. Describe administrative and organizational barriers that impact communication in practice settings. 4. Explain how time constraints can hinder effective communication and patient care.	Barriers to communication		
5	1	1. Demonstrate effective listening skills in professional interactions. 2. Apply empathic responding techniques to support patient understanding and trust. 3. Describe attitudes that underpin	Listen and respond sympathetically during communication		

		empathy, including respect, openness, and nonjudgment. 4. Recognize nonverbal behaviors that convey empathy during communication. 5. Identify common challenges in establishing effective helping relationships and propose strategies to address them.			
6	2	1. Define assertiveness and distinguish it from passive and aggressive communication styles. 2. Explain the theoretical foundations underlying assertive communication. 3. Apply assertiveness techniques in professional interactions. 4. Demonstrate assertive communication when interacting with patients. 5. Use assertiveness effectively when communicating	Assertiveness		

		with other healthcare professionals. 6. Apply assertive skills in interactions with employees and supervisors. 7. Demonstrate assertive communication in relationships with employers and management. 8. Practice assertiveness in communication with colleagues to promote teamwork and professionalism.			
7	2	1. Identify the key components of an effective interview. 2. Explain interviewing as a structured process in professional practice. 3. Apply interviewing skills in pharmacy practice settings. 4. Utilize interviewing techniques to obtain patient-reported outcomes. 5. Accurately document interview information in a professional	Interview and evaluation		

		and ethical manner. 6. Demonstrate effective interviewing skills using telephone-based communication.			
8	2	1. Identify common misconceptions regarding patient understanding and medication adherence. 2. Apply effective techniques to improve patient understanding of medications and treatment plans. 3. Describe strategies to support the establishment of new health-related behaviors. 4. Utilize approaches that facilitate sustainable behavior change in patients. 5. Explain theoretical models that underpin behavior change in healthcare. 6. Apply motivational interviewing principles and strategies to enhance patient	Helping patients to manage treatment regimens		

		engagement and adherence.			
9	2	1. Identify the essential components of effective patient counseling. 2. Explain the role of patient counseling in promoting safe and effective medication use. 3. Demonstrate appropriate counseling techniques tailored to individual patient needs.	Patient consultation, counseling list, discussion point by point, counseling scenario		
10	2	1. Explain key medication safety concepts and common safety issues in healthcare practice. 2. Identify different types of medication errors, their possible causes, and potential prevention strategies. 3. Describe general approaches to enhance patient safety when medication errors occur, including reporting and system-based solutions.	Medication safety and communication skills	1- Whiteboard, multimedia lectures, power point presentation 2- Class discussion 3- Presentation of cases of ethical dilemmas 4- Handouts 5- Brainstorming 6- Problem solving	1- Short MCQs 2- Oral exam and direct questions in the class 3- Midterm exam 4- Electronic exams on the electronic platform 5- Final exam 6. Reports and Assignments

11	2	1. Adapt communication strategies to effectively interact with older adults. 2. Apply appropriate communication techniques when caring for patients with communication impairments or disabilities. 3. Demonstrate sensitive and compassionate communication with terminally ill patients. 4. Communicate effectively and respectfully with patients living with HIV/AIDS and those with mental health disorders. 5. Identify and apply safe communication approaches when interacting with suicidal patients. 6. Adjust communication methods for patients with low health literacy to improve understanding and adherence. 7. Demonstrate cultural competence in patient	Strategies to manage specific needs		
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		communication across diverse populations. 8. Engage caregivers effectively as partners in patient care and communication.			
12	2	1. Explain the importance of educating children and their parents about medications and safe medication use. 2. Apply a patient-centered communication approach when interacting with pediatric patients and their caregivers. 3. Recognize differences in cognitive development and adapt communication strategies accordingly. 4. Describe general principles for communicating with and empowering infants, toddlers, and preschool children. 5. Adjust communication techniques to effectively engage school-	Communicating with elderly and children about medications		

		age children and adolescents in their care.			
13	2	1. Describe the role of pharmacists in collaborative medication therapy management. 2. Identify common barriers and facilitators that influence effective collaborative partnerships. 3. Outline the initial steps required to establish collaborative practice arrangements. 4. Explain the importance of trust in building and sustaining successful collaborative relationships. 5. Apply effective communication skills to strengthen collaborative professional interactions. 6. Describe critical behaviors essential for effective collaboration within healthcare teams.	Interprofessional communication and collaboration skills		

14	2	1. Describe the role of the Internet and electronic communication in modern healthcare and society. 2. Explain the appropriate use of e-mail in professional and healthcare settings. 3. Discuss patient–provider electronic communication , including benefits, limitations, and best practices. 4. Describe interprofessional electronic communication and its role in collaborative patient care. 5. Identify key issues related to patient privacy, data protection, and system security in electronic communication. 6. Explain legal and liability considerations related to electronic communication and the therapeutic relationship. 7. Describe how electronic communication can be used to	Electronic communication in healthcare.		
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		establish and support pharmaceutical care services. 8. Demonstrate principles of composing, managing, and responding to professional e-mail messages.			
15	2	1. Define medication adherence and health literacy and explain their relevance to patient care. 2. Describe the incidence and prevalence of medication nonadherence and limited health literacy. 3. Explain the clinical, economic, and public health consequences of poor medication adherence and low health literacy. 4. Identify common causes and contributing factors to medication nonadherence and limited health literacy. 5. Describe methods used to assess and measure medication	Medication adherence and health literacy		

		adherence and health literacy. 6. Apply effective strategies and interventions to improve medication adherence and enhance patient health literacy.			
11. Course Evaluation					
20% Midterm exam, 10% (Quizzes, attendance, active participation in class, assignment), 70% final					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice, the latest edition		
Main references (sources)			-Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice, the latest edition -A Handbook for Teaching Courses in Pharmacy Communications.		
Recommended books and references (scientific journals, reports...)			Skills for Communicating with Patients. Th Edition. 2013.		
Electronic References, Websites			Review articles		

Course Description Form

1. Course Name:	
General Toxicology	
2. Course Code:	
PH4204	
3. Semester / Year:	
Second semester /Fourth level	
4. Description Preparation Date:	
2025–2026	
5. Available Attendance Forms:	
Full–time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 hours/week (theoretical), 2 hours/week (practical), total units = 3	
7. Course administrator's name (mention all, if more than one name)	
Name: Ruaa Yasir Altayeb Email: Ruaa.Yasir@alayen.edu.iq	
8. Course Objectives	
Course Objectives	To study the principle of exposure to different chemicals and environmental factors, their sources, mechanisms of toxicity and their risk to human being; it enables students to understand the required measures to protect living organisms against the suspected toxic hazards.
9. Teaching and Learning Strategies	
Strategy	1. lectures included multimedia lectures 2. power point presentation 3. practical work 4. class activity 5. Self –learning 6. brain storming
10. Course Structure	

Course Structure					
Week	Hrs.	CLOs	Unit/Module or Topic Title	Teaching and Learning Methods	Assessment methods
1	3	– Define important terms in toxicology – Identify classifications of toxicology	Introduction of toxicology	Power point presentation Practical work	Short MCQ Practical exam Midterm exam Final exam
2	2	– Understand types of toxicants – Compare between the different areas in toxicology – Describe spectrum of undesired effects	Basic principles of toxicology		
3	2	– Understand mechanism of liver toxicity by toxicants – Distinguish types of liver injury	Hepatotoxicity		
4	2	– Explain Pathophysiology responses of kidney – Study mechanism of nephrotoxicants	Renal toxicity		
5	2	– Identify acute response of lungs to injury – Identify types of chronic respiratory toxic response	Toxicity of respiratory system		

6	2	–Describe toxicant effects on the nervous system –explain mechanism of neurotoxicity and examples of neurotoxicants	Toxicity of nervous system		
7	2	–Study effects of xenobiotics on erythrocytes –Understand alterations in the respiratory function of hemoglobin	Blood toxicity		
8	2	–Classify pesticides according to their use –Explain mechanism of toxicity	Pesticides		
9	2	–Describe toxic effects of metals –Apply drugs in treatment of metals intoxication	Metals toxicity		
10	2	–Classify food additives and contaminants –Apply therapeutic drugs for food poisoning	Food contaminants		
11	2	–Identify common poisonous plants –Understand management of plant poisoned patients	Plants toxicity		

12	2	–Explain mechanisms of air pollutants –Describe clinical effects	Air pollution		
13	2	–Describe health effects of particulate matter –Define SMOG and acid rain	Environmental pollutants		
14	3	–Describe mechanism of chemical carcinogenesis	carcinogenesis		
15	2	–Identify steps of mutagenesis	Mutagenesis		

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)	–Casarett & Doull's Toxicology: The Basic Science of Poisons by Curtis D. Klaassen, 10th Edition –Poisoning and drug overdose, 8 th edition
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	● www.pubmed.com ● www.biomed.net ● www.ncbi.nlm.nih.gov

Course Description Form

1. Course Name:	
Industrial pharmacy I	
2. Course Code:	
PH4205	
3. Semester / Year:	
Second semester/ fourth year	
4. Description Preparation Date:	
2025-2026	
5. Available Attendance Forms:	
Full-time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours/week (theoretical), 2 hours/week (practical), total units = 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Lecturer Dr. Samer Khalid Ali Email: Samer.ali@alayer.edu.iq	
8. Course Objectives	
Course Objectives	The subjective aim of this course is to teach pharmacy students the steps and lines upon which the preformulating processing of pharmaceutical dosage forms. This fundamental course provides the required principles to integrate knowledge of pharmaceutical technology in preformulating of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms. Characterization, solubility and stability analysis
9. Teaching and Learning Strategies	
Strategy	Lectures and Presentation, Interactive discussions related photos and videos, brainstorm, and Inverted classrooms with learning strategies
10. Course Structure (Theory)	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understand the Principles of Pharmaceutical Processing: mixing	fluid mixing; Flow characteristics. mechanisms of mixing; mixing equipment. batch and continuous mixing	smartboard/ Presentation slides/ discussion	oral questions and written exams
2	3	Knowledge of the mixer and best selection of mixer	batch and continuous mixing; mixer selection.	smartboard/ Presentation slides/ discussion	oral questions and written exams
3	3	Describe the Milling	pharmaceutical application of milling; size distribution and measurement; Theory of comminution	smartboard/ Presentation slides/ discussion	oral questions and written exams
4	3	Understand types of mills	types of mills; factors influencing milling; selection of mills techniques and techniques of	smartboard/ Presentation slides/ discussion	oral questions and written exams

			milling		
5	3	Understand Drying industrial process	Definition of drying; purpose; Psychrometry (Humidity measurement); theory of drying; drying of solids	smartboard/ Presentation slides/ discussion	oral questions and written exams
6	3	Define drying equipment's	classification of dryer; specialized drying methods	smartboard/ Presentation slides/ discussion	oral questions and written exams
7	3	Understand process of Clarification and filtration	Theory; filter media; filter aids; selection of drying method; non-sterile and sterile operations: integrity testing	smartboard/ Presentation slides/ discussion	oral questions and written exams
8	3	Understand the equipment's and systems (Commercial and laboratory) of filtration.	equipment and systems (Commercial and laboratory) of filtration	smartboard/ Presentation slides/ discussion	oral questions and written exams
9	3	Describe Sterilization; validation of	Sterilization; validation of methods; microbial death	smartboard/ Presentation slides/	oral questions

		methods; microbial death kinetics	kinetics	discussion	and written exams
10	3	To understand Methods of sterilization	Methods of sterilization (Thermal and non- thermal); mechanisms; evaluation	smartboard/ Presentation slides/ discussion	oral questions and written exams
11	3	To understand effect of route of administration	Sterile Products; effect of route of administration	smartboard/ Presentation Slides /discussion	oral questions and written exams
12	3	Describe Formulations of ophthalmic preparations and Effect of Added Substances	Formulations; ophthalmic preparations Formulation development ; Added Substances (Sterile Products)	smartboard/ Presentation slides/ discussion	oral questions and written exams
13	3	Describe the types of containers	Containers; Plastic Containers Glass Containers (Sterile Products)	smartboard/ Presentation Slides /discussion	oral questions and written exams
14	3	Describe the Types of tests used in Quality Control	Production; Quality Control (Sterile Products)	smartboard/ Presentation slides/ discussion	oral questions and written exams

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	The Theory and practice of industrial pharmacy.”, Leon Lachman, 2009
Main references (sources)	1–Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third Edition, Michael E. Aulton (Author) Churchill, Livingstone–Elsevier 2–Ansel's Pharmaceutical dosage forms and drug delivery systems, tenth edition 2014.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
Organic pharmaceutical chemistry II	
2. Course Code:	
PH4 101	
3. Semester / Year:	
First semester / fourth level	
4. Description Preparation Date:	
2025–2026	
5. Available Attendance Forms:	
Full–time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3x15= 45 hrs (theoretical) 2x15=30 hrs (practical) /number of units = 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Sarmad Dheyaa Noori Email: sarmed.noori@alayen.edu.iq	
8. Course Objectives	
Course Objectives	This course offers an in–depth exploration of the pharmaceutical chemistry and pharmacology of major drug classes that target key physiological systems. The curriculum focuses on the relationship between chemical structure and biological activity (SAR), the mechanism of action at specific receptors, and the therapeutic applications of these agents in treating various diseases.
9. Teaching and Learning Strategies	
Strategy	1–lectures included multimedia lectures 2– power point presentation 3– practical work 4– open discussion 5– class activity 6–Self learning

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Cholinergic agents	Cholinergic agents, cholinergic receptors and their subtype	1–lectures included multimedia	1–written exam
2–3	5	Cholinergic agents	Cholinergic agonists; stereochemistry and SAR; products; cholinesterase inhibitors	lectures 2– power point presentation	2– Quiz 3–midterm exam 4– final exam
3–4	5	Cholinergic agents	Cholinergic blocking agents; SAR; solanaceous alkaloid and analogues; synthetic cholinergic blocking agents and products; ganglionic blocking agents (neuromuscular blocking agents).	on 3– open discussion 5– class activity 6–Self learning	
5–7	9	Adrenergic agents	Adrenergic agents (adrenergic neurotransmitters), adrenergic receptor; drugs affecting adrenergic neurotransmission; sympathomimetic agents, adrenergic receptor antagonists		
8–9	5	CNS depressant	CNS depressant; benzodiazepines and related compounds; barbiturate; CNS		

			depressant with skeletal muscle relaxant properties; antipsychotics; anticonvulsants		
10	2	CNS stimulants	Central sympathomimetic agents Antidepressants		
11–12	5	Drugs affecting cardiovascular system	Drugs affecting the Renin Angiotensin pathway and calcium blockers, vasodilators		
12–14	7	Histamine and anti-histaminic agents	Structure–activity relationships at H1–receptors; first–generation antihistamine classes; second–generation antihistamines; recent antihistamine developments: the “dual–acting” antihistamines; histamine H2–antagonists: structural derivation of the “H2–antagonists		
14–15	5	NSAIDs	Cyclooxygenases; Therapeutic Classifications; SAR.		

11. Course Evaluation

Written exam 60 marks

Midterm 20 marks

Practical 20 marks

Total =100 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Foye's Principles of Medicinal Chemistry Roche PhD (Author), S. William PhD Zito 7 th Edition PhD by Victoria PhD F. , College of Pharmacy, Houston Uni, Texas, USA.
Main references (sources)	Wilson and Gisvolds textbook of organic medicinal and pharmaceutical chemistry, John M. B.; John H.B. (twelfth edition).
Recommended books and references (scientific journals, reports...)	An Introduction to Medicinal Chemistry Edition by Graham L. Patrick, University of West of Scotland, UK
Electronic References, Websites	Websites of Arab and universities and pharmaceutical companies

Course Description Form

1. Course Name:	
Organic Pharmaceutical chemistry III	
2. Course Code:	
PH4 204	
3. Semester / Year:	
Second semester/ Fourth level	
4. Description Preparation Date:	
2025-2026	
5. Available Attendance Forms:	
Full-time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3x15= 45 hrs (theoretical) 2x15=30 hrs (practical) /number of units = 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Sarmad Dheyaa Noori Email: sarmed.noori@alayen.edu.iq	
8. Course Objectives	
Course Objectives	- This course covers the medicinal chemistry and pharmacology of chemotherapeutic drugs. It details the mechanisms of anticancer agents, from traditional antineoplastics to modern biotherapeutics. - The curriculum also provides an in-depth analysis of major antibacterial classes (including β-lactams and sulfonamides) and concludes with an overview of antiviral and antifungal agents.
9. Teaching and Learning Strategies	
Strategy	1-lectures included multimedia lectures 2- power point presentation 3- practical work 4- open discussion 5- class activity 6-Self learning

		7– Brain storming 8– Role play			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1–5	15	Anticancer agent	Antineoplastic agents: alkylating agents; antimetabolites; antibiotics; plants products; miscellaneous compounds Hormones and related compounds; Future anti-neoplastic agents; Monoclonal antibodies; Gene therapy of cancer.	1–lectures included multimedia lectures 2– power point presentation 3– practical work 4– open discussion 5– class activity 6–Self learning 7– Brain storming 8– Role play	1–Assignment 2– Quiz 3–midterm exam 4– Practical exam 5– final exam
6–7	5				
8–10	9	Antibacterial	β – lactam antibiotics(penicillins); β – lactamase inhibitors; cephalosporins and monobactams		
11–12	6		Aminoglycosides and chloramphenicol; tetracyclines; macrolides; Lincomycins and polypeptides patterns,		
13	3		Sulfonamide:chemistry, nomenclature, mechanism of action, resistance, toxicity, side effect,		

			metabolism protein binding, distribution and SAR) products, sulfones		
14–15	5	Antiviral	Agents Inhibiting Virus Attachment, Penetration, and Early; Agents Interfering with Viral Nucleic Acid Replication; HIV Protease Inhibitors; HIV Reverse Transcriptase Inhibitors; HIV Integrase Inhibitors; Investigational Antiviral Agents		
15	2	Antifungal	Biochemical targets for antifungal chemotherapy; Polyene Membrane Disruptors; Ergosterol Biosynthesis Inhibitors; Inhibitors of Cell Wall Biosynthesis—Echinocandins; miscellaneous drugs.		

11. Course Evaluation

Written exam 60 marks

Midterm 20 marks

Practical exam 20 marks

Total =100 marks

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Foye's Principles of Medicinal Chemistry Rod Rodighiero PhD (Author), S. William PhD Zito 7 th Edition P
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	by Victoria PhD F. , College of Pharmacy, Houston Uni, Texas, USA.
Main references (sources)	Wilson and Gisvolds textbook of organic medicine and pharmaceutical chemistry, John M. B.; John H.B. (twelfth edition).
Recommended books and references (scientific journals, reports...)	Foye's Principles of Medicinal Chemistry Roche PhD (Author), S. William PhD Zito 7 th Edition Prepared by Victoria PhD F. , College of Pharmacy, Houston Uni, Texas, USA. Wilson and Gisvolds textbook of organic medicine and pharmaceutical chemistry, John M. B.; John H.B. (twelfth edition). An Introduction to Medicinal Chemistry 7th Edition by Graham L. Patrick, University of the West of Scotland, UK
Electronic References, Websites	Websites of Arab and universities and pharmaceutical companies

Course Description Form

1. Course Name:	
Pharmacology III	
2. Course Code:	
PH4201	
3. Semester / Year:	
Fourth year second semester	
4. Description Preparation Date:	
2026–205	
5. Available Attendance Forms:	
Full–time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total):	
2 hr x 15 weeks= 30 hr	
7. Course administrator's name (mention all, if more than one name)	
Name: Karema mohamed Abuelfotouh soliman	
Email: Karema.mohammed@alayen.edu.eg	
8. Course Objectives	
Course Objectives	The aims of the course are to provide students with the basics of pharmacology of the commonly used groups of drugs affecting the endocrine system regarding their pharmacological actions, uses, adverse effects, contraindications and pharmacokinetics. Moreover, to gain knowledge about the different classes of chemotherapeutic agents concerning their pharmacological actions, uses, adverse effects, contraindications and pharmacokinetics. In addition to, the basics of pharmacology of the anti–inflammatory, analgesics and gout treatments and stem cell therapy. The course also enables the students to select the treatment regimen using comprehensive scientific knowledge of etiology and pathophysiology of disease as well as write safe prescriptions for selected common and important diseases.
9. Teaching and Learning Strategies	
Strategy	1–lectures included multimedia lectures

2– power point presentation

3– open discussion

4– class activity

5– brain storming

6– problem solving

- Interactive lectures to explain mechanisms of action, therapeutic uses, and adverse effects of drugs.
- Case-based learning to link pharmacological principles with clinical scenarios.
- Problem-based learning (PBL) to enhance critical thinking and rational drug selection.
- Use of charts, drug classification tables, and flow diagrams to simplify complex drug actions.
- Small-group discussions to compare drugs within the same class.
- Practical sessions focusing on prescription writing and dose calculations.
- Student presentations on selected drug classes to reinforce active learning.
- Formative assessments (quizzes, MCQs) to provide continuous feedback.
- Use of e-learning platforms and digital resources for self-directed learning.

10. Course Structure

Week	Hrs.	CLOs	Unit/Module or Topic Title	Teaching and Learning Methods	Assessment methods
1.	2	□ Identify anterior and posterior pituitary hormones and understand their physiological roles. □ Classify pituitary agonists and antagonists and explain their therapeutic uses.	Drugs of pituitary gland	1–lectures included multimedia lectures 2– power point presentation 3– open	1– Oral exam and direct questions in the class

2.	2	□ Classify different insulin preparations and explain their mechanisms of action. □ Describe adverse effects, drug interactions, and select appropriate therapy for type 2 diabetes.	Antidiabetic drugs (insulin)	discussion 4– class activity 5– brain storming 6– problem solving	1– Oral exam and direct questions in the class
3.	2	□ Classify oral hypoglycemic agents and explain their mechanisms of action. □ Identify adverse effects and drug interactions and select appropriate therapy for type 2 diabetes.	Oral hypoglycemic agents		1– Short MCQs 2– Oral exam and direct questions in the class
4.	2	□ Classify corticosteroids and catecholamines and explain their physiological and pharmacological effects. □ Describe therapeutic uses, adverse effects, and contraindications.	Drugs of adrenal gland		1– Oral exam and direct questions in the class
5.	2	□ Apply gonadal hormones and inhibitors in the management of reproductive disorders. □ Identify therapeutic indications, limitations, and potential adverse	The gonadal hormones and inhibitors		1– Short MCQs

		effects.			
6.	2	□ Define autacoids, classify their types, and explain their physiological roles. □ Describe mechanisms and therapeutic uses of autacoid antagonists.	Autacoids and autacoid antagonists		2– Oral exam and direct questions in the class
7.	2	□ Classify NSAIDs and anti-inflammatory agents and explain cyclooxygenase enzyme inhibition. □ Compare selective and non-selective NSAIDs and describe therapeutic uses.	NSAIDs and other anti inflammatory agents		1– Short MCQs 2– Oral exam and direct questions in the class
8.	2	□ Identify drugs used in erectile dysfunction and explain the mechanisms of phosphodiesterase inhibitors. □ Describe therapeutic uses, contraindications, and adverse effects.	Drugs used in erejctile dysfunction		2– Oral exam and direct questions in the class
9.	2	□ Compare anabolic and antiresorptive agents and apply drugs in osteoporosis management. □ Describe therapeutic indications, limitations, and potential adverse effects.	Drugs used in osteoporosis		1– Short MCQs

10.	2	□ Evaluate pharmacotherapy as part of weight management and explain selective mechanisms of action. □ Describe adverse effects, limitations, and combination therapy considerations.	Drugs used in the management of obesity		1– Oral exam and direct questions in the class
11	2	□ Describe mechanisms of action, therapeutic uses, and limitations of anticancer drugs. □ Recognize adverse effects, dose-limiting toxicities, and supportive care needs.	Cancer chemotherapy		1– Short MCQs
12	2	□ Apply anticancer drugs in treatment protocols and combination therapy. □ Monitor patients for toxicity and provide guidance on supportive care.	Anticancer drugs		1– Oral exam and direct questions in the class
13	2	□ Describe therapeutic uses of immunosuppressants in transplantation and autoimmune diseases. □ Identify adverse effects and infection risks and apply these drugs safely.	Immunosuppressants		1– Oral exam and direct questions in the class
14	2	□ Apply drugs in hypo- and hyperthyroidism and	Hormones of the thyroid gland		2– Oral exam and direct questions in the class

		monitor therapy for effectiveness and toxicity. □ Recognize adverse effects and manage complications.			
15	2	□ Explain mechanisms of iron, vitamin B12, folic acid, and erythropoietin. □ Apply appropriate therapy based on anemia type and monitor for safety and efficacy	Drugs for anemia		1– Short MCQs 2– Oral exam and direct questions in the class

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- Lippincott s illustrated reviews. 3rd edition Richard D. HOWLAND, Mary J Mycek 2- Katzung s pharmacology: Examination and board review 6 thedition Anthony J Trevor, Bertram G Katzung, Susan B Masters.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Goodman and Gillman 2012
Electronic References, Websites	● www.google.com ● www.pubmed.com ● www.biomed.net

Course Description Form

1. Course Name:	
Pharmacology II	
2. Course Code:	
PH4101	
3. Semester / Year:	
First semester /Fourth year	
4. Description Preparation Date:	
2025–2026	
5. Available Attendance Forms:	
Full–time and official attendance hours	
6. Number of Credit Hours (Total) / Number of Units (Total)	
3 hours/week (theoretical), 2 hours/week (practical), total units = 4	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ahmed Atwa Email: ahmed–atwa@eru.edu.eg	
8. Course Objectives	
Course Objectives	Building on the knowledge and skills obtained in Pharmacology I, this course will aim to ensure that students gain knowledge and understanding of the basic principles of cardiovascular and CNS acting drugs together with diuretics, lipid lowering drugs, common groups of drugs affecting gastrointestinal, and respiratory system regarding their pharmacological actions, uses, adverse effects, and contraindications. Also to ensure that students relate the misuse of centrally acting drugs and addiction.
9. Teaching and Learning Strategies	
Strategy	1) Lectures including multimedia lectures 2) Power point presentation 3) Open discussion 4) Class activity 5) Brain storming 6) Problem solving

7) Practical work

8) Case studies

10. Course Structure

Theory Course Structure

Week	Hrs.	CLOs	Unit/Module or Topic Title	Teaching and Learning Methods	Assessment methods
1.	2	To introduce the pharmacy students to the general pharmacology of the central nervous system and to the various drug groups used in the treatment of CNS diseases or drugs altering its function.	Introduction to nervous system	1-lectures including multimedia lectures 2- power point presentation 3- open discussion 4- class activity 5- brain storming 6- problem solving 7- case studies	1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
2.	3	To introduce pharmacy students to the various drug groups used as CNS stimulants	CNS stimulants.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
3.	3	To introduce pharmacy students to the various drug groups used as anxiolytics and hypnotics	Anxiolytic and Hypnotic drugs		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
4.	3	To introduce pharmacy students to the various drug groups used as general and local anesthetics	General and Local Anesthetics.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study

5.	3	To introduce pharmacy students to the various drug groups used as antidepressant drugs	Antidepressant drugs		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
6.	3	To introduce pharmacy students to the various drug groups used as antipsychotic drugs	Antipsychotic (neuroleptic) drugs.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
7.	2	To introduce pharmacy students to the various drug groups used as antiemetic drugs and GIT diseases.	Gastrointestinal and antiemetic drugs.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
8.	3	To introduce pharmacy students to the various drug groups used as opioid analgesics and antagonists	Opioid analgesics and antagonists.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
9.	3 2	To introduce pharmacy students to the various drug groups used in treatment of neurodegenerative diseases and various drug groups used as diuretics	Treatment of neurodegenerative diseases. Diuretics		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
10.	2	To introduce pharmacy students to the various drug groups used as antiepileptic drugs	Antiepileptic Drugs.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
11	2	To introduce pharmacy students to the various	The treatment of heart failure (HF).		1- Oral exam and direct questions in the class 2- Short MCQs

		drug groups used in treatment of heart failure	Antihyperlipidemic drugs.		3- Case study
12	2	To introduce pharmacy students to the various drug groups used in treatment of arrhythmia	Antiarrhythmic drugs.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
13	3	To introduce pharmacy students to the various drug groups used in treatment of angina	Antianginal Drugs.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
14	3	To introduce pharmacy students to the various drug groups used in treatment of hypertension	Antihypertensive drugs.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study
15	3 3	To introduce pharmacy students to the various drug groups affecting the blood and used in treatment of respiratory diseases	Drugs affecting the blood, Drugs acting on the respiratory system.		1- Oral exam and direct questions in the class 2- Short MCQs 3- Case study

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

15 points for the mid term

5 points for the daily preparation or exams

20 points for the lab

60 points for the final theoretical exam

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- <u>Whalen, K. (2018). Lippincott® Illustrated Reviews: Pharmacology. Wolters kluwer india Pvt Ltd.</u> 2- <u>Trevor, A. J., Katzung, B. G., Masters, S. B., & Kruidering-Hall, M. (2010).</u>
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	<u>Pharmacology examination & board review</u> (pp. 121–132). New York: <u>McGraw–Hill Medical</u> .
Main references (sources)	
Recommended books and references (scientific journals, reports...)	<u>Rang, H. P., Dale, M. M., Ritter, J. M., Flower, R. J., & Henderson, G. (2011). <i>Rang & Dale's pharmacology</i>. Elsevier Health Sciences.</u> <u>Brunton, L. L., Hilal–Dandan, R., & Knollmann, B. C. (2018). <i>As Bases Farmacológicas da Terapêutica de Goodman e Gilman–13</i>. Artmed Editora.</u>
Electronic References, Websites	• <u>www.google.com</u> • <u>www.pubmed.com</u> • <u>www.biomed.net</u> • <u>www.ncbi.nlm.nih.gov</u> • <u>Jornal of Pharmacology and experimen therapeutics.</u>

