



Republic of Iraq
Ministry of Higher Education & Scientific Research
Supervision and Scientific Evaluation Directorate
Quality Assurance and Academic Accreditation
International Accreditation Dept.

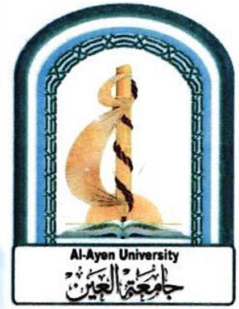


Al-Ayen University

Academic Program Specification for Clinical Pharmacy Department 2022-2023

Al-Ayen University

جامعَةُ الْعَيْنِ



PROGRAM SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

PROGRAM SPECIFICATION

This program specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

1. Educational institution	Ministry of Higher Education and Scientific Research - Al-Ayen University
2. University department / Center	College of pharmacy
3. Academic program	Clinical pharmacy
4. The title of the final granted degree	Bachelor of Pharmacy
5. The educational system	Courses system
6. Accreditation program	Under preparation
7. Other external influences	Theoretical lectures + Educational laboratories + hospital training
8. Date of description form preparation//Revision of this specification	25/9/2022

9. Academic Program Objective.

1. Make the graduate student able to read and dispense prescriptions.
2. Make the graduate student able to communicate with patients.
3. Make the graduate student able to educate patients regarding the medications they use.
4. Enabling the graduate student to follow up on medical cases and therapeutic errors that may occur as a result of the incorrect use of medications inside and outside the hospital and treat them within approved pharmaceutical contexts in such cases.
5. Determining drug doses and following them up within the approved laws in the field of drug control in hospitals and health canters in Iraq.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

1. The student must be able to read and fill medical prescriptions.
2. The student must be able to communicate with the patient.
3. The student must be able to educate the patient regarding medications.
4. The student must be able to dispense medications correctly.
5. The student will be able to determine doses using drug monitoring and pharmaceutical monitoring.
6. Enabling students to acquire and understand communication skills and ethics in the pharmacy profession.
7. Enabling students to acquire and understand Pharmacoeconomics and therapeutic medication monitoring.

B. The skill goals of the program

1. Providing students with the skills of using scientific research tools in the academic and scientific fields.
2. Enabling students with the skills of dialogue, discussion, listening to others, and accepting their opinions.
3. Enabling students to acquire self-learning skills to acquire new information, skills and knowledge.
4. Enabling students to possess verbal and non-verbal communication skills with patients.
5. Patient drug education skills.
6. Enabling students to acquire the skills of preparing medicine according to the medical conditions diagnosed by the doctor.
7. Enabling students with the skills of preparing pharmaceutical doses.
8. Providing students with the skills of diagnosing medical errors in the use and dispensing of medications.
9. Enabling students to possess pharmaceutical accounting capabilities.
10. Enable students to read and interpret all medical and pharmaceutical terms and symbols.
11. Pharmacoeconomic skills in determining the financial costs of therapeutic programs for the patient.
12. Therapeutic Drug monitoring skills and medication follow-up.
13. Enabling students to acquire the ability to dispense medication efficiently to patients.

Teaching and learning methods for cognitive and skills goals:

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams
- 6- Hospital training
- 7- Labs
- 8- Discussions

Assessment methods

- 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

C. Affective and value goals

1. Respect the patient's autonomy and preferences.
2. Training students to respect the rights of beneficiaries of their profession, culture, religion, gender and race.
3. Developing students' sense of responsibility during study and during work, and enhancing the spirit of cooperation and teamwork when requested.
4. Supporting drug culture among students and community members.
5. Educating students about professional humanitarian work and promoting and consolidating professional and ethical values among students to practice the profession of pharmacist.
6. Raising students on a culture of integrity and fighting corruption in all its forms.

Teaching and learning methods

1. Use the strategy of cooperation and assistance during the educational process.
2. Field visits to relevant ministries and educational institutions.
3. Organizing seminars, courses and workshops for students that encourage spiritual values.
4. Discussions during the lecture.

Assessment methods

1. Observing students' interaction with patients
2. Case-based scenarios
3. Homework
4. Conducting volunteer campaigns
5. Questionnaires

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1. Skills in reading prescriptions and how to counsel effectively.
2. Skills in using various computer programs, such as basic Office programs.
3. Gaining the ability to give lectures and seminars.
4. Decision-making skills
5. Listening skills

Teaching and learning methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams
- 6- Hospital training
- 7- Labs
- 8- Discussions

Assessment methods

- 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

11. The program structure

Level/Stage	Course code	Course Title	Credit Hours	
			Theoretical	Practical
First	PH1104	Medical terminology	1	
Fourth	PH3206	Communication skills	2	
Fourth	PH4206	Clinical pharmacy I	2	2
Fourth	PH4103	Clinical pharmacy II	2	2
Third	PH4203	Medical ethics	1	
Fifth	PH5103	Applied therapeutics I	3	
Fifth	PH5202	Applied therapeutics II	2	
Fifth	PH5205	Hospital training	2	4
Fifth	PH5201	Pharmacoeconomics	2	
Fifth	PH5203	TDM	2	2

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جامعة العين

12. Planning for personal development

1. Participation in training courses held within the college.
2. Participation in the professional courses held at the college within the prescribed curriculum, as well as the professional education courses held at the Pharmacists Syndicate after graduation, which helps in developing the graduate's personal skills within the professional and functional aspects.
3. There are specific modules within the program for personal development that give students the opportunity and encourage them to engage in professionally relevant qualifications that allow the students to reflect on their own professional development.

13. Admission Criteria

This is done according to the acceptance rate in the medical group (Faculty of Pharmacy) within the electronic form approved by the Ministry of Higher Education and Scientific Research (central admission). The central admission standards have been applied to the college since the 2017 academic year.

14. The most important sources of information about the program

- 1-Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide, 3rd Edition.
 - 2-ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 8th edition.
 - 3- Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics 6th edition.
 - 4- Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy handbook 11th Edition.
 - 5- 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.
 - 6-Applied Clinical Pharmacokinetics, third Edition, by Larry A. Bauer.
 - 7- Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice, 5th edition.
 - 8-Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes.
 - 9-Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. Third edition.
- Copyright © 2008 by Oxford University Press, Inc.

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COURSE SPECIFICATION

The course will provide an overview of ethical issues facing practicing pharmacists in order to enable the student to understand the basic concepts of ethics, which formulate the relationship of a pharmacist with the patient, colleagues, and other health personnel in order to deliver his pharmaceutical services in a good way. The course will begin with an introduction to ethics in pharmaceutical practice and then proceed to examine in-depth specific topics (Beneficence, Autonomy, Confidentiality, Consent...).

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Pharmacy ethics/ PH3206
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	1 hr x 15 weeks = 15 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022

8. Course Objectives

1. Enabling the student to understand the basic concepts of ethics, which formulate the pharmacist's relationship with the patient, colleagues, and other health workers in order to provide his pharmaceutical services in a good manner.
2. To enable the student to explain the ethical principles of autonomy, non-maleficence, beneficence, justice, fidelity, confidentiality, honesty and accountability as they relate to the practice of pharmacy.
3. To enable the student to understand the importance of each ethical principle in guiding professional behavior and decision-making in pharmacy settings.
4. To enable the student to identify real-world scenarios where these ethical principles can come into play and apply them appropriately to resolve ethical dilemmas in pharmacy

practice.

5. To enable the student to demonstrate ethical thinking skills by analyzing case studies and formulating ethical solutions that support the principles of autonomy, non-maleficence, benevolence, justice, sincerity, confidentiality, honesty and accountability in the context of pharmacy practice.

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. To be able to analyze basic ethical concepts such as honesty, justice, sincerity, etc., and explain how to apply them in the pharmacist's relationship with the patient and colleagues.
2. Applied case studies to illustrate how these concepts are applied in the context of pharmacy.
3. Be able to analyze each ethical principle separately and explain its relevance to the practice of pharmacy.
4. To be able to understand the impact of each principle on the pharmacist's behavior and the decision-making process.

B. The skills goals special to the course

1. Be able to analyze the ethical consequences of pharmacy decisions and explain how professional behavior is guided by ethical principles.
2. To be able to analyze real scenarios facing pharmacists and determine how ethical principles can be applied to solve problems.
3. Be able to make ethical decisions in the context of pharmacy.
4. To be able to analyze specific case studies to understand the ethical challenges related to pharmacy.
5. To be able to develop ethical solutions that support ethical principles related to pharmacy such as autonomy, justice, and confidentiality.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases of ethical dilemmas
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

C. Affective and value goals

- 1- Adhere to the highest standards of ethical and professional behavior in all aspects of treatment decision-making and patient care.

- 2- Demonstrating commitment to patient safety.
- 3- Evidence-based practice.
- 4- Respect the patient's autonomy and preferences.
- 5- Collaborate effectively with other healthcare professionals for the best interest of the patient.
6. Teaching the students to respect human dignity and freedom to make decisions.
7. Raising students on ethical and professional work.
8. Promoting and consolidating professional and ethical values among students practicing the profession of pharmacy practice.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Training and interaction in the hospital and community pharmacy
- 5- Assignments
- 6- PowerPoint presentation

Assessment methods

1. Observing students' interaction with patients
2. Case-based scenarios
3. Homework
4. Electronic MCQs on the electronic platform
5. Mid-term exam
6. Final exam

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1. Raising students on ethical and professional work.
2. Developing students' sense of responsibility during the period of study and work.
3. Supporting medication and pharmacy practice culture among students and community members.
4. Enhancing the spirit of cooperation and teamwork among students.

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10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Introduction to Pharmacy Ethics (Theoretical considerations).	1- Whiteboard and PowerPoint and data show presentation	1- Short MCQs 2- Oral exam and direct questions in the class
2	1	A1, A2, A3, B1	Code of Ethics for Pharmacists	2- Class discussion	3- Midterm exam
3/5/4	3	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Common Ethical Considerations in Pharmaceutical Care Practice (Beneficence, Autonomy, Honesty, Informed Consent, Confidentiality, Fidelity ...).	3- Presentation of cases	4- Electronic exams on the electronic platform
6/7	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C7, D1, D2, D4, D5	Interprofessional Relations.	4- Handouts	5- Final exam
8	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, C7, D1, D2, D4, D5	Making ethical decisions.	5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	
9	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, C7, D1, D2, D4, D5	Ethical issues related to clinical pharmacy research.		
10	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5, C6, C7, C8, D1, D2, D4, D5	Ethical problems in the pharmacist's clinical practice.		
11	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, C7, D1, D2, D4, D5	Preventing misuse of medicines.		
/13/12 14	3	A1, A2, A3, B1, B2, B3, C1, C3, C4, C7, D1, D2, D4, D5	Case studies in pharmacy ethics. 3		

11. Infrastructure	
Books Required reading	1-Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide, 3rd Edition. 2- Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. Third edition. Copyright © 2008 by Oxford University Press, Inc
Main references (sources)	1-Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide, 3rd Edition. 2- Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. Third edition. Copyright © 2008 by Oxford University Press, Inc
Recommended books and references (scientific journals, reports...).	
Electronic references, Internet sites...	Internet

12. Course development plan
Not available

COURSE SPECIFICATION

This course serves as an introductory base for the terminology system. It explains the basics of medical terms by analyzing their structure, including prefixes, suffixes, roots, and plurals. The student gains an understanding of medical meanings applied to the function, structure, and diseases of the human body. Abbreviations and their appropriate uses are represented.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Medical terminology/ PH1104
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	First semester 2022-2023
6. Credits (total)	1 hr x 15 weeks = 15 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
1. Scientific preparation of the student with regard to medical and scientific terminology related to his studies for the purpose of preparing a student capable of dealing with all medical terminology used in his studies. 2. In this course, students will learn the pronunciation, spelling, and definition of medical and pharmaceutical terms used in health care. They will use a word-building strategy that helps them discover connections. Relationships between word roots, prefixes and suffixes. 3. They will learn the meaning of each part of a complex medical and pharmaceutical term. Ability to put parts together and define a term.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Study simple word roots and common suffixes
2. Study of word prefixes related to pharmaceutical sciences
3. Study of basic anatomy and abnormal conditions
4. Study of the reproductive organs and urinary tract
5. Study of the digestive system
6. Study of the heart and blood vessels
7. Study of growth, development and the body
8. Study of the nervous system
9. Study of blood and diseases

B. The skills goals special to the course

1. Analyze, evaluate and interpret the different meanings of medical terms.
2. Analysis of word structure (prefixes, roots, and suffixes)
3. Apply knowledge of medical terminology in communicating with health care staff and members Really
4. Relate medical terms to standard English descriptions for communication.
5. Interpret and follow the general rule in dealing with unfamiliar medical terms.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

C. Affective and value goals

- 1- Adhere to the highest standards of ethical and professional behavior in all aspects of treatment decision-making and patient care.
- 2- Demonstrating commitment to patient safety.
- 3- Evidence-based practice.
- 4- Respect the patient's autonomy and preferences.
- 5- Collaborate effectively with other healthcare professionals for the best interest of the patient.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures

- 4- Training and interaction in the hospital and community pharmacy
- 5- Assignments
- 6- PowerPoint presentation

Assessment methods

7. Observing students' interaction with patients
8. Case-based scenarios
9. Homework
10. Electronic MCQs on the electronic platform
11. Mid-term exam
12. Final exam

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1. Raising students on ethical and professional work.
2. Developing students' sense of responsibility during the period of study and work.
3. Supporting medication and pharmacy practice culture among students and community members.
4. Enhancing the spirit of cooperation and teamwork among students.

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10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	1	A1, A2, A3, B1	Basic word roots and common suffixes	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2	More word roots, suffixes and prefixes related to pharmaceutical sciences (pharmacognosy, clinical pharmacy, pharmaceuticals,...etc)		
3.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2, D4	Basic anatomical terms and abnormal conditions		
4.	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2, D4	The genitals and urinary tract		
5.	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2, D4	The gastrointestinal tract		
6.	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2, D4	The heart and cardiovascular system		
7.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2	Symptoms, diagnoses, treatments, communication qualifiers, and statistics		
8.	1	A1, A2, A3, B1, B2, B3, C1, C2, C3, C4, C5 D1, D2, D4, D5	Growth and development, and body orientation		
9.	1	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2	Gynecology, pregnancy, and childbirth		
10.	1	A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2	The eye and the respiratory tract		
11	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, D1, D2	The nervous system and behavioral disorders		
12	1	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Blood and immunity		
13	1	A1, A2, A3, B1, B2, B3, C1, C2, C3, C4, C5 D1, D2, D4, D5	Pharmaceutical sciences		

11. Infrastructure	
Books Required reading	Medical Terminology: An Illustrated Guide, the lastest edition, by Barbara Janson Cohen
Main references (sources)	Medical Terminology: An Illustrated Guide, the lastest edition, by Barbara Janson Cohen A Short Course in Medical Terminology: Enhanced Reprint (Point (Lippincott Williams & Wilkins))
Recommended books and references (scientific journals, reports...).	
Electronic references, Internet sites...	

12. Course development plan
Not available.

COURSE SPECIFICATION

This course is intended to help pharmacists provide better care to patients, and focus on communication skills necessary to establish trust, empathize with patients' concerns, effectively educate them about their medications, and ensure their adherence to treatment plans. Additionally, it aims to enhance pharmacists' ability to actively listen to patients, address any questions or misunderstandings they may have, and collaborate with other healthcare professionals to deliver comprehensive and patient-centered care.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Communication skills/ PH4206/
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. 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 the medications they are using, including providing them with the given medication instructions, and overcoming any difficulties or obstacles hindering the delivery of these instructions to them.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

E. Cognitive goals

1. To be able to communicate with the patient and medical staff during the treatment stages.
2. To be able to educate the patient regarding the medications given to him.
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.
4. To be able to educate the patient regarding medications.
5. Enabling students to acquire and understand communication skills.

F. The skills goals special to the course

1. Increase students' communication skills with patients and medical staff during the treatment stages.
2. Increase students' drug education skills for patients.
3. Increase students' skills in making the right decisions in giving correct drug consultations 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.
4. Enable the students to acquire skills for self-learning to acquire new information, skills and knowledge.
5. Enable the students to acquire the skills of dialogue, discussion, listening to others and respecting their opinions.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

G. Affective and value goals

- 1- Adhere to the highest standards of ethical and professional behavior in all aspects of treatment decision-making and patient care.
- 2- Demonstrating commitment to patient safety.
- 3- Evidence-based practice.
- 4- Respect the patient's autonomy and preferences.
- 5- Collaborate effectively with other healthcare professionals for the best interest of the patient.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions

- 3- Lectures
- 4- Training and interaction in the hospital and community pharmacy
- 5- Assignments
- 6- PowerPoint presentation

Assessment methods

- 13. Observing students' interaction with patients
- 14. Case-based scenarios
- 15. Homework
- 16. Electronic MCQs on the electronic platform
- 17. Mid-term exam
- 18. Final exam

H. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- 1. Raising students on ethical and professional work.
- 2. Developing students' sense of responsibility during the period of study and work.
- 3. Supporting medication and pharmacy practice culture among students and community members.
- 4. Enhancing the spirit of cooperation and teamwork among students.

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10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Patient-centered communication in pharmacy practice	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Principles and basics of interpersonal communication		
3.	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Nonverbal communication		
4.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Barriers to communication		
5.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Listen and respond sympathetically during communication		
6.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Determination		
7.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Interview and evaluation		
8.	2	A1, A2, A3, B1, B2, B3, C1, C2, C3, C4, C5 D1, D2, D4, D5	Helping patients to manage treatment regimens		
9.	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Patient consultation, counseling list, discussion point by point, counseling scenario		
10.	2	A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2	Medication safety and communication skills		
11	2	A1, A2, A3, B1, B2, B3, C1, C3, C4, C5 D1, D2, D4, D5	Strategies to meet special needs		
12	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Communicate with children and the elderly about treatments		
13	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Communication and cooperation skills among medical professionals		
14	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Electronic communication in health care		
15	2	A1, A2, A3, B1, B2, B3, C1, C3, D1, D2	Ethical behavior when communicating with patients		

11. Infrastructure	
Books Required reading	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
Recommended books and references (scientific journals, reports...).	
Electronic references, Internet sites...	

12. Course development plan

There are proposals on incorporating interactive role-playing exercises and simulated patient scenarios and integrating real-world communication challenges faced in pharmacy settings, which will provide hands-on practice opportunities for students to hone their communication skills.

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COURSE SPECIFICATION

Clinical Pharmacy I course is designed to provide pharmacy students with comprehensive knowledge and practical skills related to non-prescription medications. Throughout the course, students will explore various categories of OTC medications, including analgesics, antipyretics, cough and cold remedies, gastrointestinal agents, dermatological products, dietary supplements, and others. Emphasis will be placed on patient counselling, product selection, proper dosing, potential adverse effects, drug interactions, and when to refer patients for further evaluation by a healthcare professional.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Clinical Pharmacy 1/ PH4103
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	First semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. 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. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Understand the basic concepts and knowledge in each of the clinical pharmacy areas involved.
2. Analysis of diseases and health conditions related to each topic of clinical pharmacy.
3. Understand the relationships between medications, biological factors, and environmental factors associated with each health condition.
4. Evaluate scientific evidence and recent research related to treatments and drug interactions in the context of the selected topics.

B. The skills goals special to the course

1. Apply pharmaceutical concepts and clinical information in determining the most effective and safe treatments for each health condition.
2. Use effective communication with patients and other medical teams to ensure appropriate pharmaceutical care is provided.
3. Develop skills for critical analysis of scientific research and clinical evidence to make appropriate pharmaceutical decisions.
4. Develop the ability to guide and educate patients on the use of medications and avoid harmful interactions and potential side effects.
5. Increasing drug education skills for patients
6. Increase the skills of making the right decisions in giving correct drug consultations to patients and overcoming all Obstacles that hinder the process of communication and drug education for patients and cooperation with the medical staff involved in therapeutic stages.
7. Enabling students to learn how to dispense medication to patients
8. Enabling students to acquire medication preparation skills according to medical conditions diagnosed by a doctor
9. Enabling students to possess the skills of preparing pharmaceutical doses
10. Enabling students to possess the skills to diagnose medical errors in the use and dispensing of medications

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

C. Affective and value goals

1. Promoting awareness of the importance of empathy and understanding in providing pharmaceutical care and dealing with humanitarian patients.
2. Increase pharmaceutical ethical values such as honesty, integrity, respect, and fairness in the pharmacist's interactions with patients and other medical teams.
3. Encouraging evidence-based values and critical thinking in pharmaceutical decision-making to follow up-to-date scientific research.
4. Enhancing awareness of the importance of the various social responsibilities of the pharmacist in providing high-quality health care.
5. Promoting awareness of the importance of maintaining patients' privacy and confidentiality of their health information and their legal obligations related to this aspect.
6. Encouraging the development of effective communication capabilities and cooperation within the diverse medical specialties.
7. Promoting awareness of the importance of achieving a balance between the work of the pharmacist to obtain personal light on the emotional and psychological.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Assignments
- 5- PowerPoint.
- 7- Hospital training.

Assessment methods

1. Case-based scenarios
2. Theoretical and practical exams

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- 1- Determine the appropriate medication for a single or multiple medical condition.
- 2- Determine the appropriate medications used to manage individual or multiple clinical conditions (treating the patient as a whole and not as a single disease).
- 3- Demonstrate the ability to communicate verbally and in writing
- 4- Choosing the appropriate medication for the studied diseases according to their causes and pathophysiology.
- 5- Engage effectively in a range of independent roles and discuss in an important way. Produce coherent reports in accordance with professional standards; Deliver high-quality oral presentations and other presentations.
- 6- Solve problems and design treatment plans and timetables to achieve goals on time.

10. Theory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, B2, B4, C6, D3	An Introduction to Community Pharmacy	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Respiratory problems		
3.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	GIT problems		
4.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Childcare practice		
5.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Skin diseases		
6.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Women's health		
7.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	CNS problems		
8.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Eye problems		
9.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	ENT problem		
10.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Oral health		
11	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Obesity and body control weight		
12	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Pain and disorders of the musculoskeletal system		
13	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Nicotine replacement therapy		
14	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Nutritional supplements		
15	2		Revision		

10. Laboratory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, B2, B4, C6, C6, D3	Communication with patients.	1- Whiteboard and PowerPoint and data show presentation	1- Short MCQs 2- Oral exam and direct questions in the class
2.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Respiratory system in practice (part I): Cough.	2- Class discussion	3- Midterm exam
3.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Respiratory system in practice (part II): Common cold	3- Presentation of cases	4- Electronic exams on the electronic platform
4.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	G.I.T system in practice (part I): Constipation.	4- Handouts	5- Final exam
5.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	G.I.T system in practice (part II): Diarrhea and IBS.	3- Cases	
6.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	GIT system in practice (part III): GERD& indigestion.		
7.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Skin conditions in practice (part I): Hair loss; cold sore and athlete's foot.		
8.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Skin conditions in practice (part II): Dandruff, Eczema and mouth ulcer.		
9.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Skin conditions in practice (part III): warts and scabies		
10.	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Pediatrics in practice: Oral thrush; colic; pinworm and napkin rash.		
11	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	Minor eye disorders in practice.		
12	2	A1,A2, A3, B1, B4, B5, B6, B7, B8, B9, B10, C1, C2, C4, C5, D1, D2	CNS system: Insomnia, motion sickness, obesity and nicotine replacement therapy (NRT).		
13	2	A4, B1, B3, C3	Drug Information sources for pharmacist.		

11. Infrastructure	
Books Required reading	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 International journal of clinical pharmacy
Electronic references, Internet sites...	UpToDate Internet

12. Course development plan

Using the round table system in the laboratory.
Increase access to paid programs, Lexicomp, up-to-date, Micromedex.
Introducing OSCE.

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COURSE SPECIFICATION

Clinical Pharmacy II is a foundational course designed to introduce pharmacy students to the fundamental principles of pharmacotherapy and their application in patient care. Throughout the course, students will explore the rational use of medications for the management of common acute and chronic diseases across various patient populations. Emphasis will be placed on medication selection, dosing considerations, therapeutic monitoring, and patient counselling.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Clinical Pharmacy II/ PH4203
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. 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. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Identify the basic principles of pharmaceutical care for disorders of the cardiovascular system (IHD, HF), hematological disorders (anemia), asthma, COPD, DM, PUD, tuberculosis, infective meningitis, respiratory tract infection, GIT infections, gout and hyperuricemia, RA, OA, osteoporosis, infective endocarditis, surgical antibiotic prophylaxis, UTI.
2. Describe the different classes of medications used to treat disorders of the cardiovascular system (IHD, HF), hematological disorders (anemia), asthma, COPD, DM, PUD, tuberculosis, infective meningitis, respiratory tract infection, GIT infections, gout and hyperuricemia, RA, OA, osteoporosis, infective endocarditis, surgical antibiotic prophylaxis, UTI.
3. Describe the mechanism of action, therapeutic uses, and doses of these different classes.
4. Critically evaluate clinical data, taking into account factors such as patient history, disease state, and treatment options to optimize drug therapy and patient outcomes.
5. Utilize current evidence-based guidelines to guide treatment decision-making and adapt to evolving medical practices.
6. To be able to communicate with the patient and the medical staff during the treatment stages.
7. To be able to educate the patient regarding the medications given to them.

B. The skills goals special to the course

1. Conduct comprehensive patient evaluations to make appropriate treatment decisions.
2. Demonstrates proficiency in administering medication regimens, including dosage adjustments, monitoring, and patient education.
3. Guiding patients on the safe and effective use of medications.
4. Develop and implement a therapeutic evaluation plan for patient follow-up.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

C. Affective and value goals

1. Promoting awareness of the importance of empathy and understanding in providing pharmaceutical care and dealing with humanitarian patients.

2. Increase pharmaceutical ethical values such as honesty, integrity, respect, and fairness in the pharmacist's interactions with patients and other medical teams.
3. Encouraging evidence-based values and critical thinking in pharmaceutical decision-making to follow up-to-date scientific research.
4. Enhancing awareness of the importance of the various social responsibilities of the pharmacist in providing high-quality health care.
5. Promoting awareness of the importance of maintaining patients' privacy and confidentiality of their health information and their legal obligations related to this aspect.
6. Encouraging the development of effective communication capabilities and cooperation within the diverse medical specialties.
7. Promoting awareness of the importance of achieving a balance between the work of the pharmacist to obtain personal light on the emotional and psychological.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Assignments
- 5- PowerPoint.
- 7- Hospital training.

Assessment methods

3. Case-based scenarios
4. Theoretical and practical exams

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- 1- Determine the appropriate medication for a single or multiple medical condition.
- 2- Determine the appropriate medications used to manage individual or multiple clinical conditions (treating the patient as a whole and not as a single disease).
- 3- Demonstrate the ability to communicate verbally and in writing
- 4- Choosing the appropriate medication for the studied diseases according to their causes and pathophysiology.
- 5- Engage effectively in a range of independent roles and discuss in an important way. Produce coherent reports in accordance with professional standards; Deliver high-quality oral presentations and other presentations.
- 6- Solve problems and design treatment plans and timetables to achieve goals on time.

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10. Theory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	1	A1, A2, A3, B1, B2, B3, C1, D1	Introduction	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	1	A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2, D3	Patient's care		
3.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Hematological problems		
4.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Hypertension		
5.	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Angina		
6.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Heart failure		
7.	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Peripheral vascular disease		
8.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Asthma		
9.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	COPD		
10.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	DM		
11	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Peptic ulcer		
12	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Tuberculosis		
13	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Meningitis		
14	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Respiratory infection		
15	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	GIT infection		
16	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Rheumatoid arthritis		
17	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Osteoporosis		
18	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Endocarditis		
19	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Preoperative antibiotics		
20	1	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	UTI		

10. Laboratory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Drugs for anemia and related disorders	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 4- Cases	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
2.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Cardiovascular drugs in practice (part I & II)		
3.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Drugs for asthma and COPD & Antimicrobial drugs in practice (part I): B-lactam, tetracyclines and aminoglycosides		
4.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Antimicrobial drugs in practice (part II): macrolide, sulphonamides, quinolones, and other miscellaneous antibiotics		
5.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Antimicrobial drugs in practice (part III): antivirals and antifungals		
6.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Drugs for endocrine system (part I): DM		
7.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Drugs for endocrine system (part II): thyroid disorders, corticosteroids, and hormones used in gynecological disorders		
8.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Drugs acting on CNS: (antimigraine drugs, analgesics and antiemetics) and musculoskeletal disorders: NSAID, bisphosphonates		
9.	2	A3, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Drugs for GIT disorders: peptic ulcer disease and IBD & Drugs for ENT and skin disorders		

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جامعة العين

11. Infrastructure	
Books Required reading	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 Pharmacy & 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 Pharmacy & Therapeutics 6th edition.
Recommended books and references (scientific journals, reports...).	❑ Journal of Clinical pharmacy and therapeutics ❑ International journal of clinical pharmacy
Electronic references, Internet sites...	UpToDate Internet

12. Course development plan

Using the round table system in the laboratory.
 Increase access to paid programs, Lexicomp, up-to-date, Micromedex.
 Introducing OSCE.

COURSE SPECIFICATION

Applied Therapeutics I is a foundational course designed to introduce pharmacy students to the fundamental principles of pharmacotherapy and their application in patient care. Throughout the course, students will explore the rational use of medications for the management of common acute and chronic diseases across various patient populations. Emphasis will be placed on medication selection, dosing considerations, therapeutic monitoring, and patient counselling.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Applied therapeutics I/ PH5103
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	First semester 2022-2023
6. Credits (total)	3 hr x 15 weeks = 45 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. 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. Learning Outcomes, Teaching, Learning and Assessment Method

E. Cognitive goals

1. Identify the basic principles of pharmaceutical care for disorders of the cardiovascular system (arrhythmia, thrombosis, stroke, shock, acute coronary syndrome, and dyslipidemia).
2. Identify the basic principles of pharmaceutical care for liver disease disorders (hepatitis and cirrhosis), inflammatory bowel disease, liver disorders, epilepsy, Parkinson's disease, headache, and pain management.
3. Describe the different classes of medications used to treat heart disease, gastrointestinal disorders, and liver and kidney diseases.
4. Describe the mechanism of action, therapeutic uses, and doses of these different classes.
5. Critically evaluate clinical data, taking into account factors such as patient history, disease state, and treatment options to optimize drug therapy and patient outcomes.
6. Utilize current evidence-based guidelines to guide treatment decision-making and adapt to evolving medical practices.
7. To be able to communicate with the patient and the medical staff during the treatment stages.
8. To be able to educate the patient regarding the medications given to them.

F. The skills goals special to the course

1. Conduct comprehensive patient evaluations to make appropriate treatment decisions.
2. Demonstrates proficiency in administering medication regimens, including dosage adjustments, monitoring, and patient education.
3. Guiding patients on the safe and effective use of medications.
4. Develop and implement a therapeutic evaluation plan for patient follow-up.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

G. Affective and value goals

1. Promoting awareness of the importance of empathy and understanding in providing pharmaceutical care and dealing with humanitarian patients.
2. Increase pharmaceutical ethical values such as honesty, integrity, respect, and fairness in the pharmacist's interactions with patients and other medical teams.

3. Encouraging evidence-based values and critical thinking in pharmaceutical decision-making to follow up-to-date scientific research.
4. Enhancing awareness of the importance of the various social responsibilities of the pharmacist in providing high-quality health care.
5. Promoting awareness of the importance of maintaining patients' privacy and confidentiality of their health information and their legal obligations related to this aspect.
6. Encouraging the development of effective communication capabilities and cooperation within diverse medical specialties.
7. Promoting awareness of the importance of achieving a balance between the work of the pharmacist to obtain personal light on the emotional and psychological.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Assignments
- 5- PowerPoint.
- 7- Hospital training.

Assessment methods

5. Case-based scenarios
6. Theoretical and practical exams

H. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- 1- Determine the appropriate medication for a single or multiple medical condition.
- 2- Determine the appropriate medications used to manage individual or multiple clinical conditions (treating the patient as a whole and not as a single disease).
- 3- Demonstrate the ability to communicate verbally and in writing
- 4- Choosing the appropriate medication for the studied diseases according to their causes and pathophysiology.
- 5- Engage effectively in a range of independent roles and discuss in an important way. Produce coherent reports in accordance with professional standards; Deliver high-quality oral presentations and other presentations.
- 6- Solve problems and design treatment plans and timetables to achieve goals on time.

Al-Ayen University

جامعته العين

10. Theory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Acute coronary atherosclerosis syndrome	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	arrhythmia		
3.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Blood clotting and stroke		
4.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Hypercholesterolemia		
5.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Shock		
6.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	CNS diseases		
7.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Cirrhosis and viral hepatitis		
8.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Increased intraocular pressure - nerve fibrosis		
9.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Acute kidney failure		
10.	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Chronic kidney deficiency and dialysis		
11	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	TPN		
12	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Urinary incontinence and Nocturnal urination		
13	3	A1, A2, A3, B1, B2, B3, C1, D1	Interpretation of laboratory results		
14	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Fluids, minerals, and acid-base disturbances		
15	3	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Colitis-systemic lupus erythematosus		

11. Infrastructure	
Books Required reading	1- Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy handbook 12th 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 Pharmacy & Therapeutics
Main references (sources)	1- Barbara G.Wells & Joseph T. Diriro, Pharmacotherapy handbook 12th 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 Pharmacy & Therapeutics 6th edition.
Recommended books and references (scientific journals, reports...).	Journal of Clinical pharmacy and therapeutics International journal of clinical pharmacy
Electronic references, Internet sites...	UpToDate Internet

12. Course development plan

Using the round table system in the laboratory.
 Increase access to paid programs, Lexicomp, up-to-date, Micromedex.
 Introducing OSCE.

Al-Ayen University

جامعة العين

COURSE SPECIFICATION

Applied Therapeutics II is an advanced course designed to further develop pharmacy students' knowledge and skills in the application of pharmacotherapeutic principles to patient care. Building upon the foundational concepts covered in Applied Therapeutics I, this course focuses on the management of complex medical conditions and the optimization of drug therapy in diverse patient populations. Through a combination of didactic lectures, case-based discussions, and clinical simulations, students will deepen their understanding of pharmacotherapy principles and enhance their clinical reasoning abilities.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Applied therapeutic II/ PH5202
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. 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. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Identify the basic principles of pharmaceutical care for the diseases taken in the course.
2. Describe the different classes of medications used to treat the diseases taught in this course.
3. Describe the mechanism of action, therapeutic uses, and doses of these different classes.
4. Critically evaluate clinical data, taking into account factors such as patient history, disease state, and treatment options to optimize drug therapy and patient outcomes.
5. Utilize current evidence-based guidelines to guide treatment decision-making and adapt to evolving medical practices.
6. To be able to communicate with the patient and the medical staff during the treatment stages.
7. To be able to educate the patient regarding the medications given to them.

B. The skills goals special to the course

1. Conduct comprehensive patient evaluations to make appropriate treatment decisions.
2. Demonstrates proficiency in administering medication regimens, including dosage adjustments, monitoring, and patient education.
3. Guiding patients on the safe and effective use of medications.
4. Develop and implement a therapeutic evaluation plan for patient follow-up.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

C. Affective and value goals

1. Promoting awareness of the importance of empathy and understanding in providing pharmaceutical care and dealing with humanitarian patients.
2. Increase pharmaceutical ethical values such as honesty, integrity, respect, and fairness in the pharmacist's interactions with patients and other medical teams.
3. Encouraging evidence-based values and critical thinking in pharmaceutical decision-

making to follow up-to-date scientific research.

4. Enhancing awareness of the importance of the various social responsibilities of the pharmacist in providing high-quality health care.

5. Promoting awareness of the importance of maintaining patients' privacy and confidentiality of their health information and their legal obligations related to this aspect.

6. Encouraging the development of effective communication capabilities and cooperation within the diverse medical specialties.

7. Promoting awareness of the importance of achieving a balance between the work of the pharmacist to obtain personal light on the emotional and psychological.

Teaching and Learning Methods

1- Case studies

2- Discussions

3- Lectures

4- Assignments

5- PowerPoint.

7- Hospital training.

Assessment methods

1. Case-based scenarios

2. Theoretical and practical exams

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1- Determine the appropriate medication for a single or multiple medical condition.

2- Determine the appropriate medications used to manage individual or multiple clinical conditions (treating the patient as a whole and not as a single disease).

3- Demonstrate the ability to communicate verbally and in writing

4- Choosing the appropriate medication for the studied diseases according to their causes and pathophysiology.

5- Engage effectively in a range of independent roles and discuss in an important way.

Produce coherent reports in accordance with professional standards; Deliver high-quality oral presentations and other presentations.

6- Solve problems and design treatment plans and timetables to achieve goals on time.

Al-Ayen University

جامعۃ العین

10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Thyroid disease	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Gynecology and contraception		
3.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Menstrual disorders and hormone replacement therapy		
4.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Introduction to cancer diseases		
5.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Leukemia		
6.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Lymphoma		
7.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Breast cancer		
8.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Prostate Cancer		
9.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Colon cancer		
10.	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Adrenal disease		
11	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Depression disease and schizophrenia		
12	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Fatigue and insomnia		
13	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Bipolar schizophrenia		
14	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Alzheimer's		
15	2	A, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4, D1, D2, D3, D4, D5, D6	Revision		

11. Infrastructure	
Books Required reading	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 Pharmacy & 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 Pharmacy & Therapeutics 6th edition.
Recommended books and references (scientific journals, reports...).	Journal of Clinical pharmacy and therapeutics International journal of clinical pharmacy
Electronic references, Internet sites...	UpToDate Internet

12. Course development plan

Using the round table system in the laboratory.
 Increase access to paid programs, Lexicomp, up-to-date, Micromedex.
 Introducing OSCE.

Al-Ayen University

جامعة العين

COURSE SPECIFICATION

The Therapeutic Drug Monitoring (TDM) course is designed to equip pharmacy students with the essential knowledge and skills required to effectively implement and interpret therapeutic drug monitoring practices. This course focuses on the principles and applications of TDM in optimizing medication therapy and improving patient outcomes. Throughout the course, students will explore the role of TDM in individualizing drug therapy, managing drug toxicity, and ensuring therapeutic efficacy across different patient populations and disease states. Emphasis will be placed on understanding the pharmacokinetic and pharmacodynamic principles underlying TDM, as well as the factors influencing drug concentration monitoring and dose adjustment.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	TDM/PH5203
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
1. The current course enables students to learn how to select the most appropriate medications for individuals, recommend dosage regimens likely to achieve the desired therapeutic response with minimal risk of adverse effects and monitor drug effects if appropriate. 2. Students will apply clinical pharmacokinetic principles, which are essential for current clinical pharmacy practice and may become even more important with the expansion of pharmacists' roles in medication prescribing.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

E. Cognitive goals

1. Identify the main concepts in pharmacokinetics such as absorption, distribution, metabolism, and excretion.
2. Understand how different factors such as age, gender, and health status affect pharmacokinetics.
3. Analyze pharmacokinetics data and use it to determine optimal doses of medications and adjust treatment.
4. Apply knowledge of pharmacokinetics to understand and interpret patients' drug response and improve therapeutic outcomes.

F. The skills goals special to the course

1. Students' ability to estimate the optimal doses of medications using available information such as weight, age, and health condition.
2. The ability to analyze pharmacokinetic data and use it to estimate drug kinetic parameters such as half-life and area under curvature.
3. Estimating the pharmacological effect of medications according to available pharmacological information and using this information in clinical decision-making.
4. Analyzing drug information and providing drug recommendations based on scientific evidence to improve the quality of health care.
5. The ability to communicate effectively with other health team members to exchange drug information and improve coordination between teams.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

G. Affective and value goals

- 1- Adhere to the highest standards of ethical and professional behavior in all aspects of treatment decision-making and patient care.
- 2- Demonstrating commitment to patient safety.
- 3- Evidence-based practice.
- 4- Respect the patient's autonomy and preferences.
- 5- Collaborate effectively with other healthcare professionals for the best interest of the patient.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Assignments
- 5- PowerPoint presentation

Assessment methods

3. Case-based scenarios
4. Theoretical and practical exams

H. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1. Determine the appropriate medication at the appropriate dose for an individual or multiple disease condition.
2. Solve problems and design treatment plans and schedules to achieve goals on time.
3. To be able to work in the hospital's pharmacy and specialized departments.

Al-Ayen University

جامعته العين

10. Theory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, A2, A3, B1, B2, B3, C1, C2, C4, C5, D1, D2, D4, D5	Review of basic pharmacokinetic (PK) and pharmacodynamic (PD)	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK equations and calculations		
3.	2	A1, A2, A3, B1, B2, B3, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK in special population and cases		
4.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Aminoglycosides		
5.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Vancomycin		
6.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Digoxin		
7.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Phenytoin		
8.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for other Anticonvulsants (e.g., Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuximide)		
9.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Theophylline		
10.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Immunosuppressants (e.g., Cyclosporine, Tacrolimus)		
11.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for other Cardiovascular agents (e.g., Lidocaine, Procainamide/N-Acetyl Procainamide)		
12.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD of other drugs (e.g., Lithium), Anticancer agents, and Anticoagulants		

10. Laboratory Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, A2, A3, B1, B2, B3, C1, C2, C4, C5, D1, D2, D4, D5	Review of basic pharmacokinetic (PK) and pharmacodynamic (PD)	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Cases	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
2.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK equations and calculations		
3.	2	A1, A2, A3, B1, B2, B3, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK in special population and cases		
4.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Aminoglycosides		
5.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Vancomycin		
6.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Digoxin		
7.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Phenytoin		
8.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for other Anticonvulsants (e.g., Carbamazepine, Valproic Acid, Phenobarbitone/Primidone, Ethosuximide)		
9.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Theophylline		
10.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for Immunosuppressants (e.g., Cyclosporine, Tacrolimus)		
11.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD for other Cardiovascular agents (e.g., Lidocaine, Procainamide/N-Acetyl Procainamide)		
12.	2	A1, A2, A3, A4, B1, B2, B3, B4, B5, C1, C2, C4, C5, D1, D2, D4, D5	Clinical PK/PD of other drugs (e.g., Lithium), Anticancer agents, and Anticoagulants		

11. Infrastructure	
Books Required reading	Applied Clinical Pharmacokinetics, latest Edition, by Larry A. Bauer. Additional references include but not limited to the following: Clinical Pharmacokinetics Concepts and Applications, latest Edition, by Malcolm Rowland and Thomas Tozer.
Main references (sources)	Applied Clinical Pharmacokinetics, latest Edition, by Larry A. Bauer. Additional references include but not limited to the following: Clinical Pharmacokinetics Concepts and Applications, latest Edition, by Malcolm Rowland
Recommended books and references (scientific journals, reports...).	
Electronic references, Internet sites...	

12. Course development plan
Not available

Al-Ayen University

جامعة العين

COURSE SPECIFICATION

The present course will give students a 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.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Pharmacoeconomics/PH5201
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	2 hr x 15 weeks = 30 hrs
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
1. The course gives students a basic understanding of the tools needed for pharmacoeconomics. 2. Evaluates the costs and outcomes of medications and pharmaceutical care services. 3. It will enable participants to evaluate the pharmacoeconomics and quality of life literature for the purpose of making rational decisions. 4. Students will be exposed to drug-focused approaches in pharmacoeconomic research and the fundamentals of quality of life research.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Understand the various methods used to evaluate the costs and benefits of drugs, including cost-effectiveness analysis and cost-benefit analysis.
2. The ability to estimate the costs associated with different treatments and analyze them in comparison with the desired outcomes to provide economic recommendations.
3. Study the foundations of pharmacoeconomics.

B. The skills goals special to the course

1. Applying various economic tools such as cost-benefit analysis and cost-effectiveness evaluation in evaluating medicines and their policies.
2. Apply economic concepts in making decisions related to the provision and use of medicines and determining health policies.

Teaching and Learning Methods

- 1- PowerPoint and Multimedia presentation
- 2- Class discussion
- 3- Presentation of cases
- 4- Handouts
- 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams

Assessment methods

- 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

C. Affective and value goals

- 1- Adhere to the highest standards of ethical and professional behavior in all aspects of treatment decision-making and patient care.
- 2- Demonstrating commitment to patient safety.
- 3- Evidence-based practice.
- 4- Respect the patient's autonomy and preferences.
- 5- Collaborate effectively with other healthcare professionals for the best interest of the patient.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Training and interaction in the hospital and community pharmacy
- 5- Assignments
- 6- PowerPoint presentation

Assessment methods

19. Observing students' interaction with patients
20. Case-based scenarios

21. Homework
22. Electronic MCQs on the electronic platform
23. Mid-term exam
24. Final exam

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

1. Raising students on ethical and professional work.
2. Developing students' sense of responsibility during the period of study and work.
3. Supporting medication and pharmacy practice culture among students and community members.
4. Enhancing the spirit of cooperation and teamwork among students.

Al-Ayen University

جامعۃ العین

10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	2	A1, A2, A3, B1, B2	Overview of Pharmacoeconomics	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	2	A1, A2, A3, B1, B2	Measuring and estimating costs.		
3.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Critiquing research article.		
4.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Cost-minimization analysis		
5.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Cost-effectiveness analysis		
6.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Cost-utility analysis		
7.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Cost benefits analysis		
8.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Health-related. quality of life.		
9.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Decision analysis		
10.	2	A1, A2, A3, B1, B2, C1, C3, D3, d4, D5	Markov modeling, Retrospective databases		
11	2	A1, A2, A3, B1, B2	Pharmacy services.		
12		A1, A2, A3, B1, B2	Introduction to pharmacoepidemiology		
13	2		Project discussion		

11. Infrastructure	
Books Required reading	Bootman JL, Townsend RJ, McGhan WF, (Eds.), Principles of Pharmacoeconomics, the latest ed., Harvey Whitney Books Company, Cincinnati, Oh, the latest edition.
Main references (sources)	Bootman JL, Townsend RJ, McGhan WF, (Eds.), Principles of Pharmacoeconomics, the latest ed., Harvey Whitney Books Company, Cincinnati, Oh, the latest edition.
Recommended books and references (scientific journals, reports...).	
Electronic references, Internet sites...	

12. Course development plan

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Al-Ayen University

جامعة العين

COURSE SPECIFICATION

The hospital training is designed to delve into the practical aspects of clinical pharmacy practice within a hospital environment. Through a combination of theoretical learning and hands-on experience, students will develop proficiency in various clinical pharmacy activities, including medication reconciliation, therapeutic monitoring, patient counselling, and interprofessional collaboration. Throughout the course, students will engage in real-life scenarios and case studies, allowing them to apply theoretical concepts to practical situations commonly encountered in hospital pharmacy practice.

1. Educational institution	Al-Ayen University - College of Pharmacy
2. College department/Center	Clinical pharmacy
3. Course title/code	Hospital training/PH5205
4. Modes of Attendance offered	Full-time and official attendance hours
5. Semester/Year	Second semester 2022-2023
6. Credits (total)	4 hr / week
7. Date of description form preparation//Revision of this specification	25/9/2022
8. Course Objectives	
1. Teach students to apply pharmacy practice to different hospital wards. It includes training on evaluating and following up the condition, evaluating therapeutic regimens, recording errors related to drug treatment, and providing ideas to solve problems.	

9. Learning Outcomes, Teaching, Learning and Assessment Method

A. Cognitive goals

1. Studying the different types of minor illnesses and how to deal with them in the pharmacy and hospital.
2. Study of various diseases (causes, symptoms, diagnosis, and treatment).
3. Study the communication skills necessary for the work of a pharmacist.

B. The skills goals special to the course

- 1- Communication skills with patients
- 2- The skill of medication counseling and education for patients
- 3- The skill of extracting the required information from approved sources.

Teaching and Learning Methods

- 1- Hospital training
- 2- discussion
- 3- Presentation of cases
- 4- Handouts

Assessment methods

- 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

C. Affective and value goals

- 1- Adhere to the highest standards of ethical and professional behavior in all aspects of treatment decision-making and patient care.
- 2- Demonstrating commitment to patient safety.
- 3- Evidence-based practice.
- 4- Respect the patient's autonomy and preferences.
- 5- Collaborate effectively with other healthcare professionals for the best interest of the patient.

Teaching and Learning Methods

- 1- Case studies
- 2- Discussions
- 3- Lectures
- 4- Training and interaction in the hospital and community pharmacy
- 5- Assignments
- 6- PowerPoint presentation

Assessment methods

25. Observing students' interaction with patients

- 26. Case-based scenarios
- 27. Homework
- 28. Electronic MCQs on the electronic platform
- 29. Mid-term exam
- 30. Final exam

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

- 1- Determine the appropriate medication for a single or multiple medical condition.
- 2- Determine the appropriate medications used to manage individual or multiple clinical conditions (treating the patient as a whole and not as a single disease).
- 3- Demonstrate the ability to communicate verbally and in writing
- 4- Choosing the appropriate medication for the studied diseases according to their causes and pathophysiology.
- 5- Engage effectively in a range of independent roles and discuss in an important way. Produce coherent reports in accordance with professional standards; Deliver high quality oral presentations and other presentations.
- 6- Solve problems and design treatment plans and timetables to achieve goals on time.
- 7- To be able to work in the hospital's pharmacy and specialized lobbies

Al-Ayen University

جامعۃ العین

10. Course Structure

Week	Hrs	ILOs	Unit/Module or Topic Title	Teaching methods	Assessment methods
1.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in Internal Medicine: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation	1- Whiteboard and PowerPoint and data show presentation 2- Class discussion 3- Presentation of cases 4- Handouts 5- Visual aids: Utilize visual aids such as pictures, charts, graphs, diagrams	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
2.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in Internal Medicine: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
3.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in Internal Medicine: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
4.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in surgery: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
5.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in surgery: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
6.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in surgery: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
7.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in Paediatrics: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
8.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in Paediatrics: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
9.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in Paediatrics: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		

10.	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in paediatrics: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
11	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in paediatrics: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		
12	4	A1, A2, A3, B1, B2, B3 D1, D2, D3, D4, D5, D6,	Clinical Pharmacy Practice in paediatrics: Clinical observation of cases; evaluation of the case sheets; case presentation; discussion and evaluation		

11. Infrastructure

Books Required reading	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. BNF latest edition
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 Pharmacy & Therapeutics 6th edition. BNF latest edition
Recommended books and references (scientific journals, reports...).	📖 Journal of Clinical pharmacy and therapeutics 📖 International journal of clinical pharmacy
Electronic references, Internet sites...	UpToDate Lexicomp

12. Course development plan

Not available

