Lebanese International University

School of Pharmacy

Beirut – Bekaa Campuses

Fall Semester 2022-2023

PHAR505 – Pharmacology I

4 credits

Course Syllabus

Instructor	Campus	Sect	Room	Offered Time	Office hours	Address
Fadi Hdeib	Beirut	A	404-E	MW 12:20-14:00	M 8:00-9:00	fadi.hdaib@liu.edu.lb
Fadi Hdeib	Beirut	B	301-B	TTh 09:20-11:00	T 1:00-2:00	fadi.hdaib@liu.edu.lb
Fadi Hdeib	Beirut	C	301-B	TTh 11:00-12:40	Th 1:00-2:00	fadi.hdaib@liu.edu.lb
Faraj Saadeh	Beirut	D	507-F	TTh 11:00-12:40		faraj.saade@liu.edu.lb
Faraj Saadeh	Beirut	E	507-F	TTh 13:00-14:40		faraj.saade@liu.edu.lb
Rania El Majzoub	Beirut	F	507-F	MW 09:20-11:00		rania.elmajzoub@liu.edu.lb
Rania El Majzoub	Beirut	G	507-F	MW 11:00-12:40		rania.elmajzoub@liu.edu.lb
Samar Younes	Bekaa	A	101-C	TTh 08:00-9:40		samar.younes@liu.edu.lb
Samar Younes	Bekaa	B	119-C	TTh 11:00-12:40		samar.younes@liu.edu.lb

Course Coordinator: Dr. Faraj Saadeh
Department: Biomedical Sciences
Office: Pharmacy School – Block E

COURSE PREREQUISITE:

PHAR 480 (Pharmacy Practice Experience I)

REQUIRED BOOKS:

1- Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 14e Eds. Laurence L. Brunton, and Björn C. Knollmann. McGraw Hill, 2023
2- PHARMACOLOGY (Lippincott's Illustrated Reviews) by Karen Whalen, 7th edition, 2018
3- Basic & Clinical Pharmacology, 15e Eds. Bertram G. Katzung, and Todd W. Vanderah. McGraw Hill, 2021
4- RANG AND DALE'S PHARMACOLOGY, by Humphrey P. Rang, Maureen M. Dale, Churchill Livingstone; 9th edition, 2020.

COURSE DESCRIPTION:

This course introduces the underlying principles of pharmacology and provides an overview of the physiological, biochemical, and anatomical foundations for the interaction of drugs and chemicals with biological systems.
The course includes a systematic study of the effects of drugs on different organ systems and disease processes, the mechanisms by which drugs produce their therapeutic and toxic effects, and the factors influencing their absorption, distribution and biological actions. Specific drugs and sites of drug action are further examined beginning with the peripheral, followed by the central nervous system, and drugs used to treat inflammation.

COURSE OBJECTIVES:

This course aims to prepare the students to:

1- Introduce basic principles of pharmacology in relation to pharmacodynamics and pharmacokinetics.
2- Explain how the fundamental pharmacological properties of pharmacokinetics and pharmacodynamics influence routes of administration; drug distribution and drug levels in the body; drug efficacy and potency; potential for drug-drug interactions; drug toxicity; and the appropriate choice of drug for pharmacotherapy in a given patient.
3- Evaluate the major drugs and drug classes affecting peripheral and central nervous system and process of inflammation currently used in medical practice.
4- Describe the pharmacology of drugs including their indications, contraindications, clinical use, mechanisms of action, physiological effects, pharmacokinetic properties, major adverse events and clinically significant drug interactions.

INTENDED LEARNING OUTCOMES:

Upon the completion of the course, the student will be able to:

Domain 1: Foundational Knowledge

PLO	ILOs
1.1.1	• Recognize the fundamental principles of pharmacodynamics (i.e. drug-receptor interactions) and pharmacokinetics (i.e. absorption, distribution, metabolism, and elimination of drugs). • Identify the destiny of a drug in the organism (absorption, distribution, metabolism and secretion) and describe basic pharmacokinetic concepts. • Describe how drugs alter cellular function through the study of pharmacodynamics. • Demonstrate knowledge of the molecular, cellular and physiological mechanisms for the pathophysiological changes that occur during a disease and describe how targeting such mechanisms by appropriate drug(s) can act to effectively treat, cure, or mitigate the disease manifestations.
1.1.4	• List and discuss selected drugs used to stimulate or inhibit the sympathetic or parasympathetic nervous systems, including their clinical uses and potential adverse effects. • Assess major classes and provide specific examples, mechanisms of action, adverse effects and contraindications for drugs affecting the central nervous system. • Identify the major classes and provide specific examples, mechanisms of action, adverse effects and contraindications of anti-inflammatory drugs.
1.1.6	Apply knowledge of the pharmacology of the major drugs and drug classes currently used in medical practice, along with disease-specific and patient-specific factors to select the most appropriate medication(s).

Domain 2: Pharmaceutical Care

PLO	ILOs
2.1.1	Identify the physiochemical and biochemical properties of drugs in relation to absorption, distribution, potency, and elimination.
2.1.2	Interpret different mechanisms of drug interactions to estimate risk of drug-drug interactions, drug-disease interactions, and drug-food interactions.

Domain 3: Essentials for Practice and Care

PLO	ILOs
3.1.1	Interpret patients' history and clinical manifestations.
3.1.2	• Select the appropriate management based on the patients' subjective and objective data • Identify complications caused by inadequate diseases/therapy and select the most appropriate alternatives.
3.1.3	Develop the most appropriate patient treatment plan based on updated evidence.
3.1.5	Interpret various diagnostic, prognostic, patient and disease related factors to propose the most effective therapeutic options.
3.1.6	Recommend appropriate monitoring parameters for both safety and efficacy based on the drug class and associated adverse events.

Domain 4: Approach to Practice and Care

4.1.1	Identify the primary problems while selecting the most appropriate therapy based on patient characteristics.
4.1.2	Explore multiple alternative medications to solve identified problems.

TEACHING AND ASSESSMENT METHODS:

ILOs	Learning Methods	Assessment Methods
1.1.1, 1.1.4, 1.1.6, 2.1.1, 2.1.2, 3.1.1, 3.1.2, 3.1.3, 3.1.5, 3.1.6, 4.1.1, 4.1.2	• Lectures as PowerPoint presentations	• Midterm Exam: MCQ's • Final Exam: MCQ's

COURSE ATTENDANCE REGULATIONS:

- Attendance is obligatory.
- You cannot miss more than 1/3 of the course time (even if eligible excuses), otherwise you will be automatically receiving an AW (Academic Withdraw). (A maximum of 2 weeks of absenteeism is allowed! (10 Hours)
- A student who wishes to stop attending must withdraw from the course to avoid an F from being posted at the end of the semester.
- No students are allowed to enter the class if they are being late for more than 5 minutes.
- Cell phones are strictly prohibited from being used during classroom time. Should a mobile ring, you will be given a warning and asked to turn off the phone immediately. Moreover, under no circumstances should you be allowed to leave class to answer the phone.

CHEATING REGULATIONS:

1. **Exams will be conducted on campus in a computerized format.**
2. Cheating during exams in any way or form, will not be tolerated and will be considered as evidence of academic dishonesty. Students will be referred to the grievance committee and an F will be posted on the exam.
3. Plagiarism: It is unacceptable to copy and pass off, as one's own the ideas or words of another without properly crediting the source. Turnitin, the university's designated plagiarism checker, may be used on any submitted written work. Instances of inappropriate or unacceptable academic behavior will be treated on a case-by-case basis with the consequences ranging from no credit on the assignment for those involved to automatic failure of or removal from the course. In addition, university administration may be notified.

MAKE-UP EXAMS:

- Makeup exams are not allowed and attending exams is obligatory.
- Make up exams are ONLY allowed in cases of:
    a. Death of a first degree relative ONLY
    b. Hospitalization with a valid hospital medical report: only hospital records are allowed.
    c. COVID-19 infection confirmed by a valid positive PCR test.

GRADE DISTRIBUTION AND EXAM SCHEDULE:

Exam	Date	Time	Grade distribution
Midterm Exam	**Friday, November 25, 2022**	09:45 AM – 11:00 AM	40%
Final Exam	Set by the university	TBA	60%

COURSE OUTLINE:

Week	Date	Lecture number	Topic's details	Digital Tools	ILO's covered
1		1	Introduction: Pharmacodynamics and Pharmacokinetics	Gaming: cross word	**1.1.1**
2		2	Neuropharmacology: The Autonomic and Somatic Motor Nervous Systems	Gaming: X/O with Q/A	
3		3	Cholinoceptor-Activating and Cholinesterase-Inhibiting Drugs		**1.1.1, 1.1.4, 1.1.6, 2.1.1, 2.1.2, 3.1.1, 3.1.2, 3.1.3, 3.1.5, 3.1.6, 4.1.1, 4.1.2**
4		4	Cholinoceptor-Blocking Drugs		
4-5		5	Adrenoceptor Agonists and Sympathomimetic Drugs	Case studies	
5-6		6	Adrenoceptor Antagonist Drugs		
6		7	Sedative-Hypnotic Drugs	Padlet	
6-7		8	The Alcohols		
7		9	General Anesthetics		
8		10	Local Anesthetics		
9		11	Drugs of abuse: CNS stimulants	Flipped classroom	
10-11		12	Antidepressants	Flipped classroom	
11-12		13	Antipsychotics and Lithium	Flipped classroom	
13		14	Opioids Analgesics and Antagonists	Cross words	
14-15		15	Non-Steroidal Anti-inflammatory Drugs		
15		16	Corticosteroids		