Lebanese International University

School of Pharmacy

Beirut – Bekaa Campuses

Fall Semester 2022-2023

PHAR425 – Pharmacognosy and Herbal Medicine

3 Credits

Course Syllabus

Instructor	Campus	Sect	Room	Offered Time	Office hours	Address
Hadi Dassouki	Bekaa	A	012-C	MW 8:00-9:15	MW 10:45-11:45	hadi.dassouki@liu.edu.lb
	Bekaa	B	012-C	MW 9:30-10:45	MW 10:45-11:45	
Rasha Jbara	Bekaa	C	116-C	TTH 9:30-10:45		rasha.jbara@liu.edu.lb
Hadi Dassouki	Beirut	D	403- E	TTH 9:30-10:45	TTH 8:30-9:30	hadi.dassouki@liu.edu.lb
	Beirut	E	403- E	TTH 11:00-12:15		
	Beirut	F	403- E	TTH 12:30-13:45		
Rima Boukhary	Beirut	A	302- F	MW 8:00-9:15	MW 11-12:30	rima.boukhary@liu.edu.lb
	Beirut	B	302- F	MW 9:30-10:45		
	Beirut	C	302-F	MW 12:30-13:45		
	Beirut	G	404 -B	TTH 15:30-16:45	TTH15:00-15:30	

Course Coordinator: **Dr. Rima Boukhary**

Department: Pharmaceutical Sciences

Office: Pharmacy school - Block A

COURSE PREREQUISITE:
BIOL200, BIOL345, BMED445, BIOC310, CHEM200, CHEM240, CHEM300, PHAR400

REQUIRED BOOKS:

- M. Heinrich, J. Barnes et al. Fundamentals of Pharmacognosy and Phytotherapy.2004
- Drugs of Natural origin a treatise of pharmacognosy 7th revised edition. 2015 Gunnar.
- Pharmacognosy Fundamentals, applications and strategy 2017. S. Baddal.
- Biosynthesis and Biotransformation of Natural Products: Natural products from plants. 2nd edition by: Leland J. Cseke, Ara Kirakosyan (2006).
- Course notes (Phytochemistry).
- Periodicals, websites, and scientific research papers.

RESOURCES:

Please access and comment on the course Padlet page: Pharmacognosy PHAR425 (padlet.com)

COURSE DESCRIPTION:

The course introduces students to natural products and other bioactive molecules from nature, their origin, identification, development, and usage. Furthermore, it identifies the chemical structure, classes, and structure-activity relationships of natural products. Moreover, the course identifies the importance of natural products as major ingredients used within drug manufacturing.

COURSE OBJECTIVES:

This course aims to prepare the students to:

1. Explain the basic principles of drug development from natural products and their role in the development and production of drugs.
2. Familiarize students with natural product compound's structure and related classes.
3. Introduce students to plant morphology and anatomy.
4. Select the most important medicinal plants and explain their uses within drug manufacturing.

INTENDED LEARNING OUTCOMES:

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

Domain 1: Foundational Knowledge

PLO	ILOs
1.1.1	• Identify the role of pharmacognosy in modern pharmacy and review its evolution throughout history till modern applications. • List different types of complementary and alternative medicine (CAM) along with traditional medicines (TM) and evaluate their modern use. • Classify and assess several types of secondary metabolites and extrapolate their role as natural medicines.

1.1.5	Demonstrate a satisfactory knowledge about natural medicine indications, compositions and contraindications.

Domain 2: Pharmaceutical Care

PLO	ILOs
2.1.1	Identify the physiochemical and pharmacological properties of natural remedies.
2.1.2	Recognize different drug-herb and drug-food interactions and highlight the pharmacist role in the prevention of such interactions.

TEACHING AND ASSESSMENT METHODS:

ILOs	Learning Methods	Assessment Methods
1.1.1, 1.1.5, 2.1.1, 2.1.2	• Lectures as PowerPoint presentations	• Midterm and Final (MCQ's)

ATTENDANCE REGULATIONS:

1. Attendance is obligatory.
2. 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))
3. 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.
4. No students are allowed to enter the class if they are being late for more than 5 minutes.
5. 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.

GRADE DISTRIBUTION AND EXAM SCHEDULE:

Exam	Date	Time	Grade distribution
Midterm			40%
Final Exam	Set by the university	TBA	60%

COURSE OUTLINE:

Week	Date	Lecture number	Topic's details	Tools used	Exams	ILO's covered
1	October 3-October 7, 2022	1	1- Introduction to pharmacognosy	Chapter Portrait Mind map		1.1.1
2	October 10-October 14, 2022	2	2- Taxonomy Quality control in herbal medicine	Mind map and Millionaire game		1.1.1
3	October 17-October 21, 2022	3	3- CAM and TM	Mind map Playing cards game		1.1.1
4	October 24-October 28, 2022	4	4- Natural product chemistry (polyketides)	Mind map Mug printing activity		1.1.1, 1.1.5, 2.1.1
5	October 31-November 4, 2022	5	5- Shikimic acid derived natural products	Mind map Playing cards game		1.1.1, 1.1.5, 2.1.2
6	November 7-November 11, 2022	6	6- Terpenes & Volatile oils	Mind Map Cream preparation activity		1.1.5, 2.1.1, 2.1.2
7	November 14-November 18, 2022	7	7- Glycosides	Mind map		
8	November 23-November 24, 2022 **M, F: NO CLASSES**	8	8- Alkaloids	Mind map	Midterm	

9	November 29- December 1, 2022 **M, F: NO CLASSES**	9	9- Alkaloids			
10	December 5, 2022 December 7, 2022 December 8, 2022 **T, F: NO CLASSES**	10	10- GIT	Matching game for each herb/ drug Mind map		2.1.1, 2.1.2,
11	December 12- December 16 2022	11	11- CNS	Matching game for each herb/ drug Mind map		
12	December 19- December 23 2022	12	12- Respiratory system	Matching game for each herb/ drug Mind map		
13		Christmas Vacation				
14	January 2-January 5, 2023	14	Endocrine system	Matching game for each herb/ drug Mind map		
15	January 9- January 12, 2023	15	Infectious & anti-cancer- Muscular, ENT, Skin	Matching game for each herb/ drug Mind map		

Summary of tools used:

1- Art portrait
2- Who wants to be a millionaire template quiz
3- Wildcraft herbal tool
4- Pharmacy simulation maquette
5- Mugs printing of herbal photos
6- Herbal libraries
7- Padlet (Pharmacognosy PHAR425 (padlet.com))