



**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

1	Course title	Pharmacognosy
2	Course number	1201321
3	Credit hours (theory, practical)	2 (theory)
	Contact hours (theory, practical)	32 (theory)
4	Prerequisites/corequisites	General Biology - 2 (0304102), Biochemistry - 1 (1203251)
5	Program title	BSc & PharmD
6	Program code	
7	Awarding institution	The University of Jordan
8	Faculty	Pharmacy
9	Department	Pharmaceutical Sciences
10	Level of course	Undergraduate
11	Year of study and semester (s)	1 <sup>st</sup> semester, 3 <sup>rd</sup> year
12	Final Qualification	BSc & PharmD
13	Other department (s) involved in teaching the course	NA
14	Language of Instruction	English
15	Date of production/revision	4 <sup>th</sup> September 2016

#### 16. Course Coordinator:

Dr Mayadah Shehadeh  
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 University Academic Website: <http://eacademic.ju.edu.jo/m.shehadeh/default.aspx>  
 Office No.: 207  
 Office Tel.: Ext 23313 (06 5355000)  
 Office hours: Sundays and Tuesdays 10-11, Mondays and Wednesdays 12-1

#### 17. Other instructors:

Professor Khalid Tawaha  
 E-mail: [tawaha2003@yahoo.com](mailto:tawaha2003@yahoo.com)  
 Office No.: 210  
 Office hours: to be announced

#### 18. Course Description:

This course aims at acquainting students with the basic knowledge of pharmacognosy science and medicinal plants used in pharmacy and therapy. The course involves two main topics; the first devoted to subjects deals generally with natural drug products, their classification, production, evaluation and their general chemistry. The second emphasizes upon the products of plant primary metabolism including carbohydrates, lipids, and amino acids and their derivatives.

#### 19. Course aims and outcomes:

**\* Program Competencies Achieved:**

Category	Elements
1 Dispensing of Medicines (Natural Products)	1.1 Recognize pharmacological classes of drugs 1.2 Identify available originator brands of medicines and their alternative generic products 1.5 Obtain medicines from their legal and reliable sources 1.6 Recognize and follow proper storage conditions of medicines 1.11 Package medicines properly to ensure their stability, safety and patient accessibility 1.13 Advise patients on proper storage, usage and adherence of dispensed medicines
2. Patient Care (Natural Products)	2.8 Identify indications, side effects and contraindications of medicines 2.9 Identify drug-drug and drug-food interactions of medicines 2.18 Identify any medicament-related problems and take appropriate actions to resolve them 2.22 Identify the main mechanisms of action of drugs 2.23 Recognize the principles of drug safety and efficacy evaluation
3. Pharmaceutical Industry (Natural Products)	3.1 Identify physiochemical properties of drug substances
4. Pharmaceutical Supply and Marketing (Natural Products)	4.1 Store pharmaceutical products in proper facilities under suitable storage conditions

**A- Aims:**

1. Understanding the definition and material of pharmacognosy science and its applications in therapy and pharmacy.
2. Acquainting knowledge of natural drugs, their classification, production, evaluation as well as their general chemistry.
3. Understanding type, chemistry, use and applications of products of plant primary metabolism including carbohydrates, lipids, and their derivatives.

**B- Course Intended Learning Outcomes (ILOs): Upon successful completion of this course students will be able to ...**

Successful completion of the course should lead to the following outcomes:

**A. Knowledge and Understanding:** Student is expected to

- A1. Understand the science of pharmacognosy and the roles of natural products (e.g. medicinal plants and herbs) in pharmacy and therapy.
- A2. Acquaint the knowledge of plant primary metabolites and their importance as natural products.

**B. Intellectual Analytical and Cognitive Skills:** Student is expected to

- B1. Generally define and investigate in the different fields and disciplines related to study of natural drugs and pharmacognosy science including sample preparation and separation.
- B2. Define, identify and evaluate natural drugs derived from plant primary metabolism (carbohydrates, lipids, and proteins).

**C. Subject-Specific Skills:** Student is expected to

- C1. Acquaint practical knowledge of methods of identification, classification, production, chemical and physical evaluation of natural drug products.

- C2. Identify natural products of plant primary metabolism and their applications in therapy, pharmacy and food industry.

**D. Transferable Key Skills:** Students is expected to

- D1. Work in a team as a work-group and discuss results with other colleagues.  
D2. Know how to conduct a literature survey, access specific information about medicinal plants and natural products as well as how to collect data of others' research to prepare a group common report.

### Teaching Methods

Lectures, Discussions, Assignments and Presentations

### 20. Topic Outline and Schedule:

<i>Content</i>	<i>Week</i>	<i>Instructor</i>	<i>Achieved ILOs</i>	<i>Evaluation Methods</i>	<i>Reference (part)</i>
<b>Introduction to Pharmacognosy:</b>	<b>(1-7)</b>	K.Tawaha	A B C D	Exams, Quizzes	<b>2 &amp; 3</b>
- Definitions and materials of pharmacognosy science	<b>1</b>	K.Tawaha	A B C D	Exams, Quizzes	2(1), 3(1)
- Roles of natural products in modern medicine	<b>1</b>	K.Tawaha	A B C D	Exams, Quizzes	2(1), 3(1,6)
- Plant nomenclature and taxonomy	<b>2,3</b>	K.Tawaha	A B C D	Exams, Quizzes	3(3)
- Production (preparation) and sources of natural drugs	<b>4</b>	K.Tawaha	A B C D	Exams, Quizzes	2(1), 3(4,9)
- Classification of natural drugs	<b>5</b>	K.Tawaha	A B C D	Exams, Quizzes	2(1), 3(2)
- Quality and evaluation of natural drugs (Organoleptic, Microscopical, Chemical, etc.)	<b>6</b>	K.Tawaha	A B C D	Exams, Quizzes	2(1)
- Chemistry and variability factors	<b>7</b>	K.Tawaha	A B C D	Exams, Quizzes	2(1), 3(9)
- Photosynthesis	<b>7</b>	K.Tawaha	A B C D	Exams, Quizzes	2(2), 3(19)
<b>Carbohydrates and related substances: Applications in pharmacy, therapy, cosmetics and food industry</b>	<b>(8-15)</b>	<b>M. Shehadeh</b>	<b>A B C D</b>	<b>Exams, Quizzes</b>	<b>1, 2, &amp; 3</b>
- Generalities and Biosynthesis	<b>8</b>	M. Shehadeh	A B C D	Exams, Assignments	1(1), 2(2)
- Chemistry and classification of carbohydrates	<b>8</b>	M. Shehadeh	A B C D	Exams, Assignments	1(1), 2(2)
- Reactions of carbohydrates (monosaccharides)	<b>8</b>	M. Shehadeh	A B C D	Exams, Assignments	1(1)

- Main carbohydrates (sources, products and applications): Monosaccharides and their metabolically related products Oligosaccharides (including disaccharides) Polysaccharides (homo- and heterogeneous) Gums, mucilages and pectins	<b>9-11</b>	M. Shehadeh	A B C D	Exams, Quizzes	1(1), 2(2), 3(21)
- Dietary fibers (definition, structure and biological effects)	<b>12</b>	M. Shehadeh	A B C D	Exams, Assignments	1(1)
<b>Lipids and related substances: Applications in pharmacy, therapy, cosmetics and food industry</b>	<b>(13-16)</b>	M. Shehadeh	A B C D	Exams, Assignments	1, 2, 3
- Generalities, Biosynthesis and Chemistry	<b>13</b>	M. Shehadeh	A B C D	Exams	1(1), 2(4)
- Fatty acids (saturated and unsaturated)	<b>13</b>	M. Shehadeh	A B C D	Exams	1(1), 2(4)
- Fixed oils (castor oil, cottonseed oil, sesame oil, almond oil, etc.)	<b>14,15</b>	M. Shehadeh	A B C D	Exams	1(1), 2(4), 3(20)
- Waxes (beeswax, spermaceti, etc....)	<b>15</b>	M. Shehadeh	A B C D	Exams	1(1), 2(4), 3(20)
- Eicosanoids (prostaglandins, thromboxanes and leukotrienes)	<b>15</b>	M. Shehadeh	A B C D	Exams	1(1), 2(4)

## 21. Teaching Methods and Assignments:

<b>Development of ILOs is promoted through the following teaching and learning methods:</b>		
<b>ILO/s</b>	<b>Learning Methods</b>	<b>Evaluation Methods</b>
<b>A B C D</b>	Lectures Assignments Discussions AND Video simulations	Exams, Quizzes, Assignments Quiz in self-study materials

**Learning skills:**

- Critical thinking**
- Digital literacy**
- Problem-solving skills**
- self-study**

## 22. Evaluation Methods and Course Requirements:

<b>Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:</b>
<ol style="list-style-type: none"> <li><b>Exams,</b></li> <li><b>Quizzes</b></li> <li><b>Quiz in self-study materials</b></li> </ol>

## 23. Course Policies:

A- Attendance policies: <b>Attendance: Mandatory.</b> <b>University regulations will be applied</b>
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B- Absences from exams and handing in assignments on time:

***University regulations will be applied***

C- Health and safety procedures: NA

D- Honesty policy regarding cheating, plagiarism, misbehavior:

The participation in and/or the commitment of cheating will lead to applying all of the following penalties together

- 1) Failing the subject he/she cheated at
- 2) Failing the other subjects taken in the same course
- 3) Not allowed to register for the next semester. The summer semester is not considered as a semester

E- Grading policy:

Exams and Quizzes.

Mid Exam:	30-40 points
Quizzes and Assignments:	10-20 points
Final Exam:	50 points
Total	100 points

F- Available university services that support achievement in the course:

Classrooms, internet classes

#### 24. Required equipment:

Data show and internet connection

#### 25. References:

S N	ISBN	Title	Author	Year
1	1-898298-63-7	Pharmacognosy, Phytochemistry, Medicinal plants	Jean Bruneton	1999 (2 <sup>nd</sup> Ed)
2	971-05-0211-5	Pharmacognosy	V.E. Tyler, L.R. Brady, and J.E. Robbers	1981 (8 <sup>th</sup> Ed)
3	978-0-7020-2933-2	Trease and Evans Pharmacognosy 16 <sup>th</sup> Edition	by W.C. Evans	2009 (16 <sup>th</sup> Ed)

#### 26. Additional information:

Name of Course Coordinator: **Mayadah Shehadeh** Signature: ----- Date: Sept. 4<sup>th</sup> 2016

Head of curriculum committee/Department: ----- Signature: -----

Head of Department: **Dr Mohammad Alzweiri**

Signature: -----

Head of curriculum committee/Faculty:

Signature: -----

Dean: Prof **Abla Bsoul**

Signature: -----

Assurance

Copy to:  
Head of Department  
Assistant Dean for Quality

Course File