

Faculty: Pharmacy



Department:
pharmaceutical science

Program:**Semester: First****Academic year: 2022/2023**

Course Plan

First: Course Information

Course Number: 1101429	Course Name: Pharmacognosy and Phytochemistry	Credit Hours: 3 hr
Prerequisite: Clinical Biochemistry for pharmacy	Section Number:	Lecture Time:
Course Nature:	<input type="checkbox"/> University Obligatory Requirements University <input type="checkbox"/> Obligatory Requirements <input type="checkbox"/> Faculties Obligatory Requirements <input checked="" type="checkbox"/> Department Obligatory Requirements <input type="checkbox"/> Department Elective Requirements <input type="checkbox"/> Supporting Specialization Requirements	
Type of Education:	Fully Direct (Fully Face-to-Face Education) <input checked="" type="checkbox"/> Blended Learning (2 Face-to-Face + 1 Asynchronous) <input type="checkbox"/> Fully Electronic Education (2 Synchronous + 1 Asynchronous)	

Second: lecturer's Information

Name: Farah Al-Mamoori	Academic Rank: Assistant Prof.	
Office Number: 227	Telephone Ext: 1421	Email: Fmamoori@zu.edu.jo
Office Hours:	Sunday / 12:00 – 01:00. Monday/Tuesday 12:00 – 01:00. Wednesday Thursday 12:00 - 01:00.	

Third: Brief Description of the Course

The course is designed to provide the pharmacy student basic information about pharmacognosy & phytochemistry: nomenclature, taxonomy, secondary metabolites, extraction methods, biological activities of the medicinal plants. In addition to know the general aspects of sources of natural medicinal products and its applications.

Fourth: Learning Sources

Textbook: Pharmacognosy G.E Trease and W.C. Evans, (2009). 16th edition.		
Author: G.E Trease and W.C. Evans	Edition: 15 th edition	Year: 2002
References	<ul style="list-style-type: none"> Dewick, P.M., (2002). Medicinal natural products: a biosynthetic approach. John Wiley & Sons. Shah, B.N., 2009. Textbook of pharmacognosy and phytochemistry. Elsevier India. Heinrich, M., Williamson, E.M., Gibbons, S., Barnes, J. and Prieto-Garcia, J., 2017. Fundamentals of Pharmacognosy and Phytotherapy E-Book. Elsevier Health Sciences. 	
Teaching Type:	<input checked="" type="checkbox"/> Classroom <input type="checkbox"/> Laboratory <input type="checkbox"/> Workshop <input type="checkbox"/> MS Teams <input type="checkbox"/> Moodle	

Fifth: Learning Outcomes

Course Learning Outcomes		Program Learning Outcome Code
Code	Knowledge	
*K1	Understand the basics of pharmacognosy and phytochemistry and the roles of natural products (e.g. medicinal plants and herbs) in drug discovery and modern medicine.	**P.K1
K2	Acquaint the knowledge of plant secondary metabolites and their importance as natural products.	P.K2
Skills		
*S1	Generally define and investigate in the diverse fields and disciplines related to study of natural drugs.	**P.S1
S 2	Define, identify and evaluate natural drugs derived from plant secondary metabolism.	P.S2
Competences		
*C1	Be familiar with commercial and economical handling as well patient-oriented counseling of natural pharmaceutical products.	**P.C1
C2	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	P.C1

	report.	
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*K: knowledge, S: skills, C: competencies.

** P.K:Program Learning Outcome Knowledge, P.S:Program Learning Outcome Skill, P.C: Program Learning Outcome Competence.

Sixth: Course Structure

Lecture Date	Learning Outcome	Topics	Learning *Procedures	***TeachingMethods	References***
OCT-16	K1,K2,	<ul style="list-style-type: none"> Introduction to pharmacognosy and phytochemistry 	Direct	Lecture	8-1
18-OCT	K1,K2,	Introduction to pharmacognosy and phytochemistry	Direct	Lecture	8-1
OCT-20	K1,K2,	<ul style="list-style-type: none"> Introduction to pharmacognosy and phytochemistry 	asynchronous	Lecture	1-8
23-OCT	K1,K2,	<ul style="list-style-type: none"> Roles of natural products in modern medicine 	Direct	Lecture	75-62
25-OCT	K1, S1,S2, C1, C2	<ul style="list-style-type: none"> Roles of natural products in modern medicine 	Direct	Lecture	62-75
27-OCT	K1, S1,S2, C1, C2	<ul style="list-style-type: none"> Plant nomenclature and taxonomy 	asynchronous	Lecture	104-67
30-OCT	K1, S1,S2 C1, C2	<ul style="list-style-type: none"> Plant nomenclature and taxonomy 	Direct	Lecture	67-104
NOV-1	K2, C2, C1, S1	<ul style="list-style-type: none"> Classification of natural drugs 	Direct	Lecture	104-67
NOV-3	K2, C2, C1, S1	<ul style="list-style-type: none"> Classification of natural drugs 	asynchronous	Lecture	67-104
5-NOV	K2, K1, C2, C1, S1	<ul style="list-style-type: none"> Cultivation, collection and processing of herbal drugs 	Direct	Lecture	104-67
7-NOV	K1, K2, C2, C1, S1	<ul style="list-style-type: none"> Cultivation, collection and processing of herbal 	Direct	Lecture	67-104

		drugs			
6-NOV	K2, K2,C2, S2, S1	<ul style="list-style-type: none"> • Cultivation, collection and processing of herbal drugs 	asynchronous	Lecture	67-104
8-NOV	K2, K3,C2, S2, S1	<ul style="list-style-type: none"> • Primary Metabolites (sugar/lipids) 	Direct	Lecture	184-159
10-NOV	K2, K1,C2, S2, S1	<ul style="list-style-type: none"> • Primary Metabolites (sugar/lipids) 	Direct	Lecture	159-184
13-NOV	K2, K1, , C1, C2, S2	<ul style="list-style-type: none"> • Primary Metabolites (sugar/lipids) 	asynchronous	Lecture	159-184
15-NOV	K2, K1, , C1, C2, S2	Acetate pathway <ul style="list-style-type: none"> • Saturated / unsaturated fatty acids • Anthraquinones 	Direct	Lecture	48-35
17-NOV	K2, K1, C1, C2, S2	<ul style="list-style-type: none"> • Saturated / unsaturated fatty acids Anthraquinones 	Direct	Lecture	35-48
20-NOV	K2, K1, , C1, C2,	<ul style="list-style-type: none"> • Saturated / unsaturated fatty acids Anthraquinones 	asynchronous	Lecture	35-48
22-NOV	S1, S2, C1, C2	Shikimate pathway <ul style="list-style-type: none"> • Flavonoids • Coumarins • 	Direct	Lecture	149-121
25-NOV	S1, S2, C1, C2	<ul style="list-style-type: none"> • Flavonoids • Coumarins 	Direct	Lecture	121-149
27-NOV	S1, S2, C1, C2	Mevalonic acid pathway <ul style="list-style-type: none"> • Terpenoids (Mono, Sesqui, Di, Tri, Tetra, Polyterpenes: Biosynthesis, properties, uses) • Cardiac glycosides • .Saponin glycosides 	asynchronous	Lecture	121-149
29	S1, S2, C1, C2	Mevalonic acid pathway <ul style="list-style-type: none"> • Terpenoids (Mono, Sesqui, Di, Tri, 	Direct	Lecture	226-167

		<p>Tetra, Polyterpenes: Biosynthesis, properties, uses)</p> <ul style="list-style-type: none"> • Cardiac glycosides • Saponin glycosides 			
	K1, ,K2, C1, C2	<p>Mevalonic acid pathway</p> <ul style="list-style-type: none"> • Terpenoids (Mono, Sesqui, Di, Tri, Tetra, Polyterpenes: Biosynthesis, properties, uses) 	Direct	Lecture	167-226
	K1, ,K2, C1, C2	<p>Mevalonic acid pathway</p> <ul style="list-style-type: none"> • Terpenoids (Mono, Sesqui, Di, Tri, Tetra, Polyterpenes: Biosynthesis, properties, uses) 	asynchronous	Lecture	167-226
	K1, ,K2, K3, C1, C2	<ul style="list-style-type: none"> • Cardiac glycosides • Saponin glycosides 	Direct	Lecture	340
	K2, K3 , C1, C2,	<p>Cardiac glycosides</p> <p>• Saponin glycosides</p>	Direct	Lecture	340
	K1, ,K2, K3, C1, C2	<p>Alkaloids</p> <ul style="list-style-type: none"> • Alkaloids Derived from Ornithine 	asynchronous	Lecture	398-221
	K2, K3 , C1, C2,	Alkaloids Derived from Histidine	Direct	Lecture	221-398
	K1, ,K2, K3, C1, C2	<ul style="list-style-type: none"> • Alkaloids Derived from Lysine 	Direct	Lecture	398-221
	K2, K3 , C1, C2,	<ul style="list-style-type: none"> • Alkaloids Derived from Tyrosine 	asynchronous	Lecture	221-398
	K1, ,K2, K3, C1, C2	<p>Alkaloids</p> <ul style="list-style-type: none"> • Derived from Tryptophan 	Direct	Lecture	398-221
	K2, K3 , C1, C2,	Alkaloids Derived from Nicotinic Acid	Direct	Lecture	221-398
	K1, ,K2, K3, C1, C2	Alkaloids Derived by Amination Reaction	asynchronous	Lecture	398-221
	K2, K3 , C1, C2,	<p>Alkaloids</p> <ul style="list-style-type: none"> • Derived from 	Direct	Lecture	221-398

		Anthranilic Acid			
	K1, ,K2, K3, C1, C2	Extraction methods	Direct	Lecture	398-221
	K2, K3 , C1, C2,	Extraction methods	asynchronous	Lecture	221-398
	K1, ,K2, K3, C1, C2	Isolation & identification	Direct	Lecture	398-221
	K2, K1 , C1, C2,	Isolation & identification	Direct	Lecture	221-398
	K1, ,K2, K, C1, C2	Isolation & identification	asynchronous	Lecture	221-398

Learning procedures: (Direct, synchronous, asynchronous). ** Teaching methods: Lecture, video.....). ** Reference: Pages of the book, recorded lecture, video.....).

Seventh: Assessment methods

Methods	Fully Electronic Education	Blended Learning	Direct Teaching	The course outcomes that are measured measured

Eighth: Course Polices

Course policies are applied in all types of education (electronic learning, blended learning, & face-to-face learning) as follows:

- Meeting the deadline for the lecture.
- Commitment to interaction and participation.

- University regulations for attendance and absence from lectures and examinations are in force.
- Academic Integrity: Fraud or moral impersonation are unacceptable and are punishable according to university regulations and instructions.
- Interactive lectures will be given through a platform (MS Teams).
- Assignments and Quizzes will be given through a platform (Moodle).
- Commitment to the right appearance in front of the camera with the proper background.
- Exams will be given face to face on campus.

Approval	Name	Date	Signature
Head of Department			
Faculty Dean			