



Course Specification

— (Bachelor)

Course Title: Recent approaches in analysis of medicinal plants

Course Code: PHGN 524

Program: Pharmaceutical sciences

Department: Pharmacognosy

College: Pharmacy

Institution: Najran University

Version: 4

Last Revision Date: 18-08-2024



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A. General information about the course:

1. Course Identification

1. Credit hours: (2h (2+0))

2. Course type

A. ☐ University ☐ College ☐ Department ☐ Track ☒ Program
B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (9th level/5th year)

4. Course general Description:

This course provide the students the knowledge about plant constituents (2ry metabolites) origin, structures, extraction, isolation and uses. In addition to knowledge concerning their identification, separation, and analysis with various chromatographic and spectroscopic techniques.

5. Pre-requirements for this course (if any):

PHGN 322

6. Co-requisites for this course (if any):

None

7. Course Main Objective(s):

- a. Acquire knowledge about the different plant constituents.
- b. Understand the different classes of plant constituents, their extraction, isolation, identification, quantification, and uses

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	0





3.	Field	0
4.	Tutorial	0
5.	Others (Assignments, presentation, study)	0
Total		30

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	- Identify the classes of plant constituents and their properties.	K3	Lectures	Written exam Assignments
1.2	-Describe the biological importance of the plant constituents	K3	Lectures	Written exam Assignments
2.0	Skills			
2.1	Differentiate between the different plant constituents by chemical tests.	S3	Lectures	Written exam Assignments
2.2	- Determine the proper methods of extraction and isolation of the different plant metabolites.	S3	Lectures	Written exam Assignments Presentation
2.3	Interpret simple spectral and chromatographic data of the plant metabolites.	S3	Lectures	Written exam Assignments
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate responsibility, confidence, and independent thinking to take the right decision	V4	Lectures	Observation card



C. Course Content

No	List of Topics	Contact Hours
1.	• Alkaloids (introduction).	2
2.	• Proto-alkaloids	2
3.	• Pyridine, Piperidine, pyrrolidine, quinolizidine alkaloids.	2
4.	• Tropane, Quinoline, and isoquinoline,	2
5.	• Indole alkaloids. • Beta carboline alkaloids	2
6.	• Imidazole Alkaloids • Purine alkaloids	2
7.	• Volatile oils (introduction). - Methods of extraction of volatile oils.	2
8.	• Non-oxygenated V.O. Monoterpenes and Diterpenes, Triterpenes	2
9.	• Oxygenated V.O. (alcohol, phenols, aldehyde, ketones, oxides, peroxides)	2
10.	• Glycosides (introduction). • Simple Phenolics compounds, Cyanogenic, Thioglycosides,	2
11.	• Flavonoids. • Anthracene, and cardiac glycosides, and Tannins.	2
12.	• Chromatography (Introduction, classification, terminology, and mode of chromatographic separation). - TLC and paper chromatography.	2
13.	• Liquid and gas chromatography. Qualitative and quantitative HPLC analysis	2
14.	• Introduction to structural elucidation; UV, IR spectroscopy	2
15.	• Introduction to structural elucidation; 1D and 2D NMR, and mass spectrometry	2
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quizzes	3-14	10
2.	Midterm exam	7-9	25
3.	Assignments	1-15	5
4.	Observation card	1-15	5
5.	Presentation	12	5
6.	Final written exam	17-19	50





No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
7.	Total		100

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	<p>- Trease and Evans, Pharmacognosy, T.E, Walis, Pharmacognosy Ashtosh Kar, Pharmacognosy and Pharmacobiotechnology,</p> <p>ii- The Hand Books of Natural Flavonoids; Harborne, J., B. and Baxter, H,; John Wiley & Sons Ltd.(1999).</p> <p>iii- Natural Products Isolation; Canell, R. J. P, Humana Press. (1998).</p> <p>iv- Chromatographic Analysis of pharmaceuticals; Adamovics</p>
Supportive References	<p>1-Trease and Evans, pharmacognosy, 15t^h Ed., Saunders Company, Nottingham, U.K., William Charles Evans.(2003).</p> <p>2- Handout from power point presentation</p>
Electronic Materials	www.dlaf.nu.edu.sa
Other Learning Materials	<p>Videos and lectures available the webpages</p> <p>https://www.slideshare.net/jelalalaban5/group-4-ppt-44950682</p> <p>https://www.slideshare.net/MarwaFayed1/seeds-52154912</p>

2. Required Facilities and equipment

Items	Resources
<p>facilities</p> <p>(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)</p>	<ol style="list-style-type: none"> 1. A Suitable lecture room equipped with data show, internet, and sufficient number of seats. 2. Suitable laboratories equipped with health and safety tools, internet, and sufficient number of seats.
<p>Technology equipment</p> <p>(projector, smart board, software)</p>	<ol style="list-style-type: none"> 1. Computer 2. Internet access 3. Data show
<p>Other equipment</p> <p>(depending on the nature of the specialty)</p>	



F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of department Students	Indirect Indirect
Effectiveness of Students assessment	Faculty members Students	Indirect Indirect
Quality of learning resources	Faculty members Students	Indirect Indirect
The extent to which CLOs have been achieved	Faculty members Student	Direct Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Pharmacognosy Department Council
REFERENCE NO.	14460213-1061-00001
DATE	20-08-2024

