

Course Description Template for Pharmacognosy Third Year First Semester (Theoretical)

Performance Review of Higher Education Institution ((Academic Program Review))

Course Description

This course description provides a summary of the main characteristics of the course and the learning outcomes expected from the student to achieve, demonstrating whether they have made the maximum use of the available learning opportunities. It must be linked to the .program description

1. Educational Institution	Ministry of Higher Education and Scientific Research / Al-Zahrawi University
2. University Department / Center	College of Pharmacy
3. Course Name / Code	Pharmacognosy II Theoretical PPCG 32
4. Programs in which it is included	Bachelor of Pharmaceutical Sciences
5. Available Forms of Attendance	Daily Attendance
6. Semester / Year	First Semester / Third year
7. Total Number of Study Hours	3 hours weekly/ 45 hours total
8. Date of preparing this description	2025-2026
Course Objectives: The course aims to develop an understanding of active compounds in plants by examining their chemical structure, the processes through which they are formed within the plant, and their medical effects on the human body. It also focuses on analyzing how these compounds interact with biological systems and pharmaceutical drugs. Additionally, the course highlights the importance of plant-derived substances in health and disease, supported by examples of plants commonly used in alternative medicine to demonstrate their practical applications.	
9. Learning Outcomes, Teaching and Learning Methods, and Evaluation	

A. Knowledge and Understanding

- 1** Explain the fundamental principles of phytochemistry and the chemical diversity of natural products
- 2** Classify secondary metabolites (flavonoids, terpenoids, glycosides, tannins, etc.) based on their structures and biosynthetic pathways
- 3** Explain the biosynthesis, chemistry, and pharmacological activities of major classes of phytochemicals and natural drugs
- 4** Application of plant tissue culture

1. Subject-Specific Skills

- 1** Developing proficiency in methods for extracting active compounds from plants.
- 2** Acquiring skills in the isolation and purification of active compounds.
- 3** Gaining the ability to identify and characterize separated compounds using analytical techniques.
- 4** Developing skills in understanding drug interactions between herbal substances and pharmaceutical medications.

Teaching and Learning Methods

- 1** Theoretical lectures.
- 2** Scientific posters and interactive classroom activities.
- 3** Field visits to herbal medicine centers, in addition to botanical gardens.
- 4** Homework assignments (coursework).

2. Evaluation Methods

- 1** Midterm and final examinations.
- 2** Oral examinations.
- 3** Classroom activities and homework assignments.

3. Thinking Skills

- 1** Using modern methods to prepare and deliver lectures through PowerPoint presentations.
- 2** Applying group discussion techniques to enhance understanding of the subject matter.
- 3** Assigning homework and research tasks to develop analytical and critical thinking skills.

4. General and Transferable Skills

- 1** Enabling students to apply the knowledge they have acquired in practical settings.
- 2** Enhancing students' self-confidence through participation in discussions and seminars.
- 3** Empowering students to apply what they have learned to their professional development.

11. Course Structure					
Weeks	Hours	Required Learning Outcomes	Unit Name / Course or Topic	Learning Methods	Evaluation Method
1	3	Knowledge	Introduction: General biosynthesis pathways of secondary metabolites (Acetate and shikimic acid pathway)	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
2	3	Knowledge	Glycosides: chemical classification, physical and chemical properties, pharmacological effect	and PowerPoint Presentations	Group discussion, oral exams, and assignments
3	3	Knowledge	Cardio-active Glycosides	whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
4	3	Knowledge	Anthracene Glycoside	whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
5	3	Knowledge	Saponin glycosides	whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
6	3	Knowledge	phenolic glycosides	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
7	3	Knowledge	Flavonoid glycosides	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
8	3	Knowledge	Aldehyde glycosides, alcoholic glycosides	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
9	3	Knowledge	lactone glycosides, coumarins and chromones.	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
10	3	Knowledge	Isothiocyanate glycosides and cynophore glycosides	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
11	3	Knowledge	Tannins.	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments

12	3	Knowledge	Lignan and flavonolignan	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
13	3	Knowledge	Resins and resin combination	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
14	3	Knowledge	Toxic plants	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
15	3	Knowledge	Application of plant tissue culture pharmacognosy in medicinal products	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
Total	45				

12. Infrastructure	
Required Readings:	References: - Pharmacognosy by Tyler, 9th edition. - Trease & Evans Pharmacognosy 16th edition 2009 - Textbook of Pharmacognosy and Phytochemistry by Biren Shah, 2010 - Alkaloids-Secrets of life by Tadeusz Aniszewski 2007. - Pharmacognosy and Phytochemistry: Principles, Techniques, and Clinical Applications by Uchenna E., Wiley, 2025 - Molecular Pharmacognosy (2nd ed., 2019) edited by Lu-qi Huang
Special Requirements (Workshops, Journals, Software, Websites):	Electronic Websites: https://pharmabookbank.wordpress.com/wp-content/uploads/2019/03/14.2.pharmacognosy-by-biren-shahavinash-seth-1.pdf
Social Services (Guest Lectures, Professional Training, Field Studies, Others)	Organizing workshops and courses for graduates: - Field visits to botanical gardens - Visits to herbal shops (apothecaries)

13. Admission:	
Prerequisites	Admission according to the central plan
Minimum Number of Students	/
Maximum Number of Students	Admission exceeds the capacity plan.

Name of the Instructor:

Assistant Professor Dr. Suhad Humadi