

Course Description Template for Pharmacognosy Third Year Second 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. College	Pharmacy
3. Course Name / Code	Pharmacognosy III Theoretical PPCG 33
4. Programs in which it is included	Bachelor of Pharmaceutical Sciences
5. Available Forms of Attendance	Daily Attendance
6. Semester / Year	Second Semester / Third year
7. Total Number of Study Hours	3 hours weekly/ 45 hours total
8. Date of preparing this description	2025-2026
9. Course Objectives: This course provides students with a comprehensive understanding of alkaloids, antibiotics, phytotherapy, and nutraceuticals as important areas of pharmacognosy. It covers the classification, physical and chemical properties, natural sources, and pharmacological effects of alkaloids, with emphasis on major groups including pyridine and piperidine, tropane, imidazole, quinoline, isoquinoline, indole, purine, alkaloidal amines, and steroidal alkaloids. The course also introduces antibiotics of natural origin, including their sources, biosynthetic pathways, isolation and purification, and antibiotics derived from amino acid, acetate, and carbohydrate metabolism. In addition, students are introduced to the principles of phytotherapy, the use of medicinal plants in selected healthcare systems, and important natural products used in pharmacy and medicine. The course also covers the basic concepts of nutraceuticals, with emphasis on food or food-derived substances that may provide health benefits and contribute to the prevention and management of disease.	
10. Learning Outcomes, Teaching and Learning Methods, and Evaluation	

1. Knowledge and Understanding

- Describe the general characteristics, chemical classification, physical and chemical properties, natural sources, and pharmacological effects of the major classes of alkaloids.
- Recognize the major classes of alkaloids and identify important medicinal examples of each class.
- Explain the natural sources, biosynthetic pathways, isolation, and purification of antibiotics, including those derived from amino acid, acetate, and carbohydrate metabolism.
- Define the basic principles of phytotherapy and describe the role of medicinal plants and important natural products in pharmacy and medicine.
- Define nutraceuticals and describe their potential role in maintaining health and in the prevention and management of disease.

2. Subject-Specific Skills

- Classify alkaloids according to their chemical structures and major chemical groups.
 - Differentiate between the major classes of alkaloids based on their chemical characteristics, natural sources, and pharmacological effects.
 - Relate important alkaloid-containing medicinal plants to their major active constituents and therapeutic uses.
 - Differentiate antibiotics according to their natural sources and biosynthetic origins.
 - Relate antibiotic biosynthetic pathways to the major groups of naturally derived antibiotics.
 - Apply basic pharmacognostic knowledge to recognize the medicinal importance of natural products used in phytotherapy.
 - Differentiate between phytotherapeutic products and nutraceutical products based on their characteristics and uses.
- Interpret basic scientific information related to the therapeutic uses of alkaloids, antibiotics, medicinal plants, and nutraceuticals.

Teaching and Learning Methods

- Theoretical lectures
- HomeWorks
- Field visits to herbal centers in addition to the botanical garden
- Demonstrative videos
- Interactive Q/A

3. Evaluation Methods

- Semi-semester exams and final exams.
- Oral exams
- Classroom activities and assignments

4. Thinking Skills

- The use of modern methods in the preparation of lectures and presentations in the form of PowerPoint
- Demonstrative videos
- The use of group discussion to understand the article
- Giving homework that stimulates and activates thinking and linking information
- Open discussion (Q/A)

5. General and Transferable Skills

- The student should be able to employ the knowledge he has received.
- Giving confidence to the student through the class's open discussion.
- The student should be able to embody what he has acquired in professional development.

11. Course Structure					
Weeks	Hours	Required Learning Outcomes	Unit Name / Course or Topic	Learning Methods	Evaluation Method
1	3	Knowledge	Alkaloids: Introduction, chemical classification , Physical and chemical properties, pharmacological effect	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
2	3	Knowledge	Pyridine and piperidine alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
3	3	Knowledge	Tropane alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
4	3	Knowledge	Imidazole alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments Group discussion, oral exams, and assignments
5	3	Knowledge	Quinoline alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
6	3	Knowledge	Iso-quinoline alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
7	3	Knowledge	Indole alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
8	3	Knowledge	Purine alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
9	3	Knowledge	Alkaloidal amines and steroidal alkaloids	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
10	2	Knowledge	Antibiotics: Natural sources; biosynthetic pathways, isolation and purification.	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
11	2	Knowledge	Antibiotics derived from amino acids metabolisms	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments

12	1	Knowledge	Antibiotics derived from acetate metabolisms	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
13	1	Knowledge	Antibiotics derived from carbohydrate metabolisms	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
14	6	Knowledge	Phytotherapy: Introduction, principles, medicinal plants in selected health care systems. Important natural products used in pharmacies & medicine	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
15	6	Knowledge	Nutraceutical: any substance (food or part of a food provides medical or health benefits including the prevention and treatment of disease	Whiteboard and PowerPoint Presentations	Group discussion, oral exams, and assignments
Total	45				

12. Infrastructure	
Required Readings:	References: - Fundamentals of pharmacognosy and phytotherapy by Michael Heinrich....3rd edition, 2018. - Rational phytotherapy: A physicians' guide to herbal medicine, 3rd edition - Handbook of nutraceuticals and functional foods by Robert E. Wildman, 2nd edition. - Pharmacognosy by Tyler, 9th edition. - Trease & Evans Pharmacognosy 16th edition 2009. - Phytomedicine: A Treasure of pharmacologically active products from plants by Bhat R.A. 2021. - Quick Access: Professional Guide to Conditions, Herbs & Supplements. Published by Thieme New York, 2000.1st edition
Special Requirements (Workshops, Journals, Software, Websites):	Electronic Websites: https://www.nccih.nih.gov/health/providers/digest/herb-drug-interactions https://www.stonybrookmedicine.edu/sites/default/files/herbal_medicines_interactions-1.pdf https://reference.medscape.com/drug-interactionchecker
Social Services (Guest Lectures, Professional Training, Field Studies, Others)	Organizing field trips to herbal shops, and activities in the medical Garden

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

