



## Course Specifications

<b>Course Title:</b>	<b>Medicinal Plant of KSA</b>
<b>Course Code:</b>	<b>BIO349</b>
<b>Program:</b>	<b>Bachelor of Science in Biology</b>
<b>Department:</b>	<b>Department of Biology</b>
<b>College:</b>	<b>Faculty of Science</b>
<b>Institution:</b>	<b>University of Tabuk</b>

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## A. Course Identification

<b>1. Credit hours:</b>	<b>3 (2 Theoretical + 1 Practical) hours</b>
<b>2. Course type</b>	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
<b>3. Level/year at which this course is offered:</b>	<b>Levels 6, 7 or 8/ Third or Fourth Year</b>
<b>4. Pre-requisites for this course (if any):</b>	<b>General Botany 2 (BIO341)</b>
<b>5. Co-requisites for this course (if any):</b>	<b>None</b>

## 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2	50%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other (laboratory)	2	50%

## 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	26
2	Laboratory/Studio	26
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	<b>52</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

- This course includes the history of medicinal plants in KSA. List the important drug producing plants. Record the drugs derived from plants. Students will learn how to extract active ingredients from different herbs. Recognize the medicinal value of non-flowering and flowering plants. State the Medicinal value of flowering plants – Angiosperms. Name the Medicinal plants from Qur'an and describe the plants that have been used for the treatment of human diseases such as cancer, heart disease, nervous system disorders, and other disorders.

### 2. Course Main Objective

**By the end of this course, the students should be able to:**

- Understanding the main concepts in medicinal plants, history, economic importance, uses, botany and harvested processes of the most significant medicinal plants of Kingdom of Saudi Arabia.
- Understanding the relation between nutrition and plants, and what plants are used in the therapy of the digestive system diseases, metabolism, obesity, skin health, and all nutrition related diseases.
- Evaluating the active ingredients, volatile oils in plants and their clinical effects.



- Describing the common plants, especially those with nutritional and medicinal values.
- Explaining the mode of action of different medicinal herbs.
- Understanding the therapeutic values of medicinal plants.

### 3. Course Learning Outcomes

CLOs		Aligned PLOs
<b>1</b>	<b>Knowledge and understanding</b>	
1.1	To describe the basic concept, applications of plants in a historical, cultural, medicinal, legislative, and global context.	K1
1.2	To identify medicinal plants diversity in the floral of Saudi Arabia.	K2
<b>2</b>	<b>Skills :</b>	
2.1	To apply extraction and processing technologies for natural products from medicinal herbs.	S1
2.2	To discuss the role of herbal and traditional medicine in the discovery of new drugs.	S3
2.3	To analyze therapeutic uses of plants, illnesses caused by some plants and their toxins to humans.	S2
<b>3</b>	<b>Values:</b>	
3.1	To show bioprospecting, searching for plants that cure disease, improve human health and work independently as part of a team.	V1
3.2	To illustrate bioethics rules in current issues and research associated with medicinal plants.	V2

### C. Course Content

#### 1-Theoretical Part:

No	List of Theoretical Topics	Contact Hours
1	General Introduction and History of medicinal plants	2
2	Classification of drugs derived from plants	2
3	Classification of drugs derived from plants	2
4	Extraction of Crude Drugs from Different Medicinal Herbs.	2
5	Extraction of Crude Drugs from Different Medicinal Herbs.	2
6	Bio prospecting- searching for plants that cure disease and improve human Health	2
7	Traditional and modern concepts of plants used to promote human health in different cultures (aromatherapy, homeopathy, Ayurvedic, Unani and Chinese medicine)	2
	<b>Midterm exam</b>	
8	Chemistry of plant derived medicines	2
9	Metabolic engineering of natural products in medicinal plants	2
10	Medicinal plants diversity in the floral of Saudi Arabia	2
11	Medicinal plants in folk traditional of Saudi Arabia	2
12	Medicinal value of non-flowering plants, growing medicinal plants and Herbs	2
13	Medicinal plants from Quran, Psychoactive drugs: Drug addiction and social issues	2



	<b>Final Exam</b>	
<b>Total</b>		<b>26</b>

## 2-Practical Part:

<b>No</b>	<b>List of Practical Topics</b>	<b>Contact Hours</b>
1	Introduction to Medicinal Plants, Essential Instruments, Facilities.	2
2	Examination of different types of Medicinal Plants	2
3	Preparation of crude drugs by using cold and hot water	2
4	Preparation of crude drugs by using organic solvent	2
5	Extraction methods 1	2
6	Extraction methods 2	2
7	Extraction methods 2	2
<b>Midterm Exam</b>		
8	Extraction methods 3	2
9	Extraction methods 4	2
10	Thin layer chromatography	2
11	Some examples of important medicinal plant species of KSA	2
12	Some examples of important medicinal plant species of KSA	2
13	Some examples of important medicinal plant species of KSA	2
<b>Final Exam</b>		
<b>Total</b>		<b>26</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

<b>Code</b>	<b>Course Learning Outcomes</b>	<b>Teaching Strategies</b>	<b>Assessment Methods</b>
<b>1.0</b>	<b>Knowledge and Understanding</b>		
1.1	To describe the basic concept, applications of plants in a historical, cultural, medicinal, legislative, and global context.	- Lectures. - Case study and articles. - Activities and homework. - Use the internet.	- Quizzes. - Homework. - Periodic exams. - Final exams.
1.2	To identify medicinal plants diversity in the floral of Saudi Arabia		
<b>2.0</b>	<b>Skills</b>		
2.1	To apply extraction and processing technologies for natural products from medicinal herbs.	- Lecture - Individual and small group tasks.	- Assessment of lab reports and practical examination.
2.2	To discuss the role of herbal and traditional medicine in the discovery of new drugs.	- Short essay - Lab demonstration, dissection and drawing skills	- Individual and group presentation. - Case study.
2.3	To analyze therapeutic uses of plants, illnesses caused by some plants and their toxins to humans	- Individual presentation and	- Demonstration through charts and posters. - Periodic exams.



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
		working as a part of group	- Final exams.
<b>3.0</b>	<b>Values</b>		
3.1	To show bioprospecting, searching for plants that cure disease, improve human health and work independently as part of a team.	- Essay writing. - Lab demonstration	- Oral and written scientific report. - Interactive discussion and participation.
3.2	To illustrate bioethics rules in current issues and research associated with medicinal plants	- Individual & group presentation	- Work in groups

## 2. Assessment Tasks for Students

#	*Assessment task	Week Due	Percentage of Total Assessment Score
1	Quizzes + Assignments + Class discussion	1-13	10%
2	Midterm Theoretical Exam	8	25%
3	Midterm Practical Exam	8	10%
4	Final Practical Exam	14	15%
5	Final Theoretical Exam	15	40%

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**

- Office hours 6 hr/ week at least.
- Academic Guidance for about 30 students as determined by admission and registration.
- Direct supervision of staff for lab works.
- Electronic communication through blackboard and email.

## F. Learning Resources and Facilities

### 1. Learning Resources

<b>Required Textbooks</b>	<ul style="list-style-type: none"> <li>- Medicinal Plants Biodiversity and Drugs: Editors: <i>M. K. Rai, Geoffrey A. Cordell, Jose L. Martinez, Mariela Marinoff, Luca Rastrelli</i> (Science Publishers) July 3, 2012 Hardback - ISBN 9781578087938.</li> <li>- Medicinal Plants: Classification, Biosynthesis and Pharmacology: Editors: <i>Alejandro Varela, Jasiah Ibanez</i> (Nova Science Publishers, New York), 2009.</li> </ul>
<b>Essential References Materials</b>	<ul style="list-style-type: none"> <li>- Greco-Arab and Islamic Herbal Medicine: Traditional System, Ethics, Safety, Efficacy, and Regulatory Issues; Authors: <i>Bashar Saad, Omar Said</i>; John Wiley &amp; Sons.</li> <li>- Handbook of Arabian Medicinal Plants: Author: <i>Shahina A. Ghazanfar</i> CRC Press INC, 1994.</li> </ul>



	<ul style="list-style-type: none"> <li>- Bedouin Ethnobotany: Plant Concepts and Uses in a Desert Pastoral World, Author: James P. Mandaville, University of Arizona Press.</li> </ul>
<b>Electronic Materials</b>	<ul style="list-style-type: none"> <li>- <i>Journal of Ethnopharmacology.</i></li> <li>- <i>Journal of Medicinal Plant Research.</i></li> </ul>
<b>Other Learning Materials</b>	<ul style="list-style-type: none"> <li>- Electronic Materials, Web Sites etc.</li> <li>- Websites on the internet that are relevant to the topics of the course.</li> <li>- Arabic Medicine.</li> <li>- <a href="http://www.lsg.sch.ae/departments/history/arabic_medicine_web/html/today/today_amirah.htm">http://www.lsg.sch.ae/departments/history/arabic_medicine_web/html/today/today_amirah.htm</a></li> </ul>

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> Classrooms, laboratories, demonstration) (.rooms/labs, etc)	<ul style="list-style-type: none"> <li>- A sufficient number of classrooms to accommodate students</li> <li>- Well-equipped practical laboratories to accommodate students</li> <li>- Virtual session provided by the blackboard (which allow discussion and sharing PowerPoint and videos.</li> </ul>
<b>Technology Resources</b> (.AV, data show, Smart Board, software, etc)	<ul style="list-style-type: none"> <li>- Data show</li> <li>- Wireless connection in the building for students and faculties.</li> </ul>
<b>Other Resources</b> Specify, e.g. if specific laboratory) equipment is required, list requirements or (attach a list	<ul style="list-style-type: none"> <li>- A number of plant materials and herbs are required.</li> <li>- Vacuum oven drying, desiccator, distillatory</li> <li>- Different types of solvent for preparing crude extract.</li> </ul>

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
<ul style="list-style-type: none"> <li>- Effectiveness of teaching and assessment.</li> </ul>	<ul style="list-style-type: none"> <li>- Students.</li> </ul>	Indirect <ul style="list-style-type: none"> <li>- Questionnaires.</li> </ul>
<ul style="list-style-type: none"> <li>- The extent of achieving the course learning outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>- Program committee.</li> <li>- Staff members.</li> <li>- Students.</li> </ul>	Direct <ul style="list-style-type: none"> <li>- Questionnaires.</li> <li>- Reports.</li> <li>- Meetings</li> </ul>
<ul style="list-style-type: none"> <li>- Quality of learning resources.</li> </ul>	<ul style="list-style-type: none"> <li>- Program leaders.</li> <li>- Peer Reviewer.</li> </ul>	Direct & Indirect <ul style="list-style-type: none"> <li>- Questionnaires.</li> <li>- Reports.</li> <li>- Meetings</li> </ul>

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)



## H. Specification Approval Data

Council / Committee	Biology Department Council
Reference No.	
Date	1/6/2022

