Course Specification
(Bachelor)

Course Title:	Plant Taxonomy
Course Code:	BIO-1121
Program:	Bachelor of Science in Biology.
Department:	Biology
College:	Science
Institution:	Imam Mohammad Ibn Saud Islamic University (IMSIU)
Version:	01
Last Revision Date:	*Pick Revision Date.*

Table of Contents

A. Course Identification

1. Credit hours:	4 (3 Lectures + 2 Lab + 0 Tutorials)
2. Course type	
a.	University ☐ College ☐ Department ☑ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	Level 2 / First Year
4. Pre-requisites for this course (if any)**:**	None
5. Co-requisites for this course (if any)**:**	None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	√	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	45
2	**Laboratory/Studio**	30
3	**Tutorial**	0
4	**Others** (specify)	0
	Total	75

B. Course Objectives and Learning Outcomes

1. Course Description

This course has titles which will introduce the basic species concepts. So, this course involves classification philosophies in wild and cultivated plants, how are plants named, study of apparent taxonomic units: total vegetative and total floral, characteristics of common plant families, monocot families and eudicots families.

2. Course Main Objective

By the successful completion of the course the student will be able:

- To Recognize, and explain to others how you do it, 50 plant families.
- To Use technical identification keys, both dichotomous and multi-access, to identify plant taxa.

- To Explain some of the processes leading to plant diversification
- To Explain the basic principles guiding plant classification and nomenclature

- To demonstrate an introductory level consideration of biological taxonomic systems.
- To compare and contrast vegetative and reproductive anatomy, including leaves, stems roots, flowers, and fruits.
- To compare and contrast the mechanism of each wind, water and insect's pollination.
- To recognize some of the common and unusual families of flowering plants found locally.

To collect, identify and prepare herbarium mounts of plants and use a research herbarium.

3. Course Learning Outcomes

CLOs		Aligned-PLOs
1	**Knowledge and Understanding**	
K1	To recognize introduction addresses in taxonomy, its importance, its applications, the basic rules of classification.	K1-K2
K2	To list scientific and taxonomic keys naming, recent trends in the science of taxonomy	K1-K2
2	**Skills :**	
S1	To explain and identify the relationship between cause and consequence in the different mechanisms of taxonomy.	S1-S2
S2	To analyze data and information and view discussion of sound scientific debate.	S1-S2-S3
S3	To predict incidental problems which they face and provide appropriate solutions.	S1-S3
3	**Values:**	
V1	To appraise collaborative work skill.	V1
V2	To interpret linking between science and technology with society.	V1-V3
V3	To manipulate the operation and use of computers and means of modern technology.	V3
3...		

C. Course Content

No	List of Topics	Contact Hours
1	What is a plant? What is systematics and why study it?) Definition of taxonomy and identification of scientific importance and practical use. (Taxonomy and systematic) Wild and Cultivated plants.	3
2	Species concepts in wild plants: A. Morphological species concepts. B. Interbreeding species concepts. C. Ecological species concepts. D. Cladistic species concepts. Nominolistic species concepts.	3
3	Classification philosophies in wild and cultivated plants. Brief history of nomenclature and codes. The study of Keys of scientific and taxonomic and nomenclature directions in modern taxonomy.	3
4	Nomenclature (How are plants named?)	3

	Fundamental differences in the classification and nomenclature of cultivated and wild plants: A. Ambiguity of the term variety B. Culton versus taxon C. Open versus closed classifications	
5	A Comparison of the ICBN and ICNCP A. Nomenclatural types and standards. B. Denomination classes and the reuse of epithets. C. Botanical hybrid (species) names. D. The species category in cultivated plant taxonomy (cultonomy). E. The (notho-) genus category in cultivated plant taxonomy (cultonomy). F. Ties between the ICBN and ICNCP. Nomenclature through changes and use of the ICNCP references.	3
6	Vegetative terminology (How do taxonomists describe the features of roots, leaves and stems?) Study apparent taxonomic units, namely: Total Vegetative, total floral: inflorescences, fruits, seeds.	3
7	Dichotomous & polyclave keys (How are plants identified?) The herbarium (What is a herbarium and why is it important?) Flowers (How do taxonomists describe the features of flowers?)	3
8	Floral modifications & inflorescences (How do taxonomists describe various modifications from the 'basic' floral pattern and the features of inflorescences?	3
9	Fruits & seeds (How do we describe the features of fruits and seeds?).	3
10	Embryology & palynology (How do taxonomists describe the basic features of angiosperm embryology and pollen?).	3
11	Systematics & Diversity (What are the characteristics of common plant families? How are flowering plants classified?) Overview of Flowering Plant Classification; Ancestral Families (Nymphaeaceae, Amborellaceae). Magnoliids (Magnoliaceae)&Ceratophyllales (Ceratophyllaceae). Monocot Families: "Liliaceae," Orchidaceae.	6
12	Basal Eudicots (Ranunculaceae, Papaveraceae incl. Fumariodeae, Berberidaceae) Core Eudicots (Rosids) - Fabaceae (incl. 3 subfamilies), Rosaceae, Euphorbiaceae, Onagraceae.	3
13	Core Eudicots (Rosids): Malvaceae, Brassicaceae, Salicaceae; Asterids - Asteraceae. Core Eudicots (Asterids): Ericaceae, Primulaceae, Caprifoliaceae Core Eudicots (Asterids) : Boraginaceae, Hydrophyllaceae, Lamiaceae, Scrophulariaceae (sl) ; Verbenaceae Core Eudicots (Asterids) : Solanaceae, Apocynaceae (Asclepiadaceae), Apiaceae, Rubiaceae, Convolvulaceae Core Eudicots (Caryophyllids) : Amaranthaceae, Caryophyllaceae, Polygonaceae, Cactaceae, Nyctaginaceae	3

14	• Traditional Classification; Linnaeus. • Evolutionary Classification. Revision.	3
Total		45

D. Teaching and Assessment

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

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
K1	To recognize introduction addresses in taxonomy, its importance, its applications, the basic rules of classification.	Interactive lecture. Discussion and dialogue.	Written tests. Oral tests.
K2	To list scientific and taxonomic keys naming, recent trends in the science of taxonomy.	Collaborative learning. Style – Wiki.	Classroom assignments. Home assignments.
2.0	**Skills**		
S1	To explain and identify the relationship between cause and consequence in the different mechanisms of taxonomy.	Mental focus. Problem-solving and decision-making.	Performance of written tests.
S2	To analyze data and information and view discussion of sound scientific debate.	Find the collective Reciprocal teaching	Work sample tests. Student's projects. Research papers.
S3	To predict incidental problems which they face and provide appropriate solutions.	Style – Wiki. Teaching with analogies and the similes Survey Discovery.	Bags achievement - portfolio.
3.0	**Values**		
V1	To appraise collaborative work skill.	Collaborative learning.	Organized observation.
V2	To interpret linking between science and technology with society.	Collective research project and writing reports and presenting its display.	Assigning students to conduct research using the internet and modern technology.
V3	To manipulate the operation and use of computers and means of modern technology.	Default – laboratories and illustrated presentations.	Recording student performance.

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm 1	Around 6th -7th week	15%
2	Midterm 2	Around 11th -12th week	15%
3	Quizzes, Attendance, Participation, Home works.	All the semester	10 %

#	Assessment task*	Week Due	Percentage of Total Assessment Score
4	Lab reports.	All the semester	5%
5	Lab Exam.	Around 15th week	15%
6	Final Exam.	Around 15th-16th week	40 %
7	Total		100%

***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 :
Personal office hour.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Janick J., 2003. Horticultural Reviews: Volume 28, John Wiley & Sons. ISBN: 978-0-471-21542-4. Harris, J.G. and Harris M.W., 2001. Plant identification terminology: an illustrated glossary, 2nd edition. Spring Lake Pub., Spring Lake UT. ISBN-10: 0964022168. Pandey S. N. *et al.*, 2001. A Textbook of Botany: Angiosperms - Taxonomy, Anatomy, Embryology and Economic Botany Paperback. ISBN-10: 8121904048. Sivarajan V.V., 1991. Introduction to the Principles of Plant Taxonomy Cambridge University Press, Second Edition. ISBN-13: 978-0521356794.
Essential References Materials	C. Jeffery (2007): An Introduction to Plant Taxonomy. (Cambridge University Press, Second Edition. Pandey (2004): Practical botany volume I and II by B.P. Whitson, T.D. (2006): Weeds of the west, 9th edition. Diane Pub Co. ISBN-10: 0756711827. Fahn A. (1990). Plant Anatomy.4th. Edit. Pergamon press, Oxford.
Electronic Materials	Sciencedirect.com.
Other Learning Materials	CDs private classifies plant. Electronic programs for anatomy and mechanisms of action of various devices.

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classrooms reserved for lectures and prepared the traditional education (face to face) and E-learning (E-learning) that allow interaction between teachers and

Item	Resources
	students, ordinary paper blackboard smart plasma screens *etc*. A (Stage), with an integrated audio system and microphones connected to the Internet and networks 2 Wired and wireless (optical fiber), and air conditioning system and modern suitable lighting.
Technology Resources (AV, data show, Smart Board, software, etc.)	A computer for display and uses of data with a slide show presentation. High-device "projectors" Lighting. It is assumed that each student has its own computer.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	Specific laboratory equipment for this course including posters, models of different experimental plants , dissection instruments, light microscopes, dissection microscopes, microtome instrument, slide preparations, mixer, fluorescent microscopes, molecular instruments like gel electrophoresis, PCR centrifuge, thermal cycler, an illuminator, centrifuges, incubators, ovens and other glassware's.

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
At the end of the course each student will complete an evaluation form which it will be used by the faculty to evaluate the course feedback and the instructor.	Students	Direct
At the end of each semester the course coordinator completes a report, including a summary of student questionnaire responses appraising progress and identifying changes that need to be made if necessary.	Course coordinator	Direct
Reviewing the course reports submitted at the end of each semester.	Peer Reviewer	Indirect
Follow up of faculty members by specialized committees devoid of bias and criticism.	Specialized committees	Indirect
Check a sample of marking by independent faculty member.	Faculty	Indirect

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	Head of biology department
Reference No.	
Date	