

## SYLLABUS

Course Code	Course Num.	Course Name	Credit Hours	Lec.	Lab.	Tut.	Private study	Pre-requisites	Course Level	Teaching Language
BIO	121	Taxonomy of Botany	4	3	2	0	4-6	-	2	English

### A. 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.

### B. Course Outcomes

At the end of this course the student will be able:

1. To Recognize, and explain to others how you do it, 50 plant families.
2. To Use technical identification keys, both dichotomous and multi-access, to identify plant taxa.
3. To Explain some of the processes leading to plant diversification
4. To Explain the basic principles guiding plant classification and nomenclature
5. To demonstrate an introductory level consideration of biological taxonomic systems.
6. To compare and contrast vegetative and reproductive anatomy, including leaves, stems roots, flowers, and fruits.
7. To compare and contrast the mechanism of each wind, water and insects pollination.
8. To recognize some of the common and unusual families of flowering plants found locally.
9. To collect, identify and prepare herbarium mounts of plants and use a research herbarium.

### C. References:

#### Required Textbook

- 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.

#### Other references:

- 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.

**Course Website:** Google Classroom Webpage: <http://www.imamm.org/>

## D. Topics Outline

### D1. Lectures Topics

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)
2. ***Wild and Cultivated plants.***
3. ***Species concepts in wild plants: Morphological species concepts, Interbreeding species concepts, Ecological species concepts, Cladistic species concepts, Nominolistic species concepts.***
4. ***Classification philosophies in wild and cultivated plants.***
5. ***Brief history of nomenclature and codes.***
6. ***The study of Keys of scientific and taxonomic and nomenclature directions in modern taxonomy.***
7. ***Nomenclature (How are plants named?)***
8. ***Fundamental differences in the classification and nomenclature of cultivated and wild plants: Ambiguity of the term variety, Culton versus taxon, Open versus closed classifications.***
9. ***A Comparison of the ICBN and ICNCP: Nomenclatural types and standards, Denomination classes and the reuse of epithets, Botanical hybrid (species) names, The species category in cultivated plant taxonom(cultonomy), The (notho-) genus category in cultivated plant taxonomy(cultonomy), Ties between the ICBN and ICNCP.***
10. ***Nomenclature through changes and use of the ICNCP references.***
11. ***Vegetative terminology (How do taxonomists describe the features of roots, leaves and stems? )***
12. ***Study apparent taxonomic units, namely: Total Vegetative, total floral: inflorescences, fruits, seeds.***
13. ***Dichotomous & polyclave keys (How are plants identified?)***
14. ***The herbarium (What is a herbarium and why is it important?)***
15. ***Flowers (How do taxonomists describe the features of flowers?)***
16. ***Floral modifications & inflorescences (How do taxonomists describe various modifications from the 'basic' floral pattern and the features of inflorescences?)***
17. ***Fruits & seeds (How do we describe the features of fruits and seeds?).***
18. ***Embryology & palynology (How do taxonomists describe the basic features of angiosperm embryology and pollen?)***
19. ***Systematics & Diversity (What are the characteristics of common plant families? How are flowering plants classified?)*** Overview of Flowering Plant Classification; Ancestral Families (*Nymphaeaceae, Amborellaceae*).
20. ***Magnoliids (Magnoliaceae) & Ceratophyllales (Ceratophyllaceae).***
21. ***Monocot Families: "Liliaceae," Orchidaceae.***

22. **Basal Eudicots** (*Ranunculaceae, Papaveraceae incl. Fumariodeae, Berberidaceae*)
23. **Core Eudicots (Rosids) - Fabaceae** (*incl. 3 subfamilies, Rosaceae, Euphorbiaceae, Onagraceae.*)
24. **Core Eudicots (Rosids): Malvaceae, Brassicaceae, Salicaceae; Asterids -Asteraceae.**
25. **Core Eudicots (Asterids): Ericaceae, Primulaceae, Caprifoliaceae**
26. **Core Eudicots (Asterids): Boraginaceae, Hydrophyllaceae, Lamiaceae, Scrophulariaceae (sl); Verbenaceae**
27. **Core Eudicots (Asterids): Solanaceae, Apocynaceae (Asclepiadaceae), Apiaceae, Rubiaceae, Convolvulaceae**
28. **Core Eudicots (Caryophyllids): Amaranthaceae, Caryophyllaceae, Polygonaceae, Cactaceae, Nyctaginaceae.**
29. **Traditional Classification; Linnaeus.**
30. **Evolutionary Classification.**

## D2. Laboratories Topics

1. **Introduction, field safety; lab safety; plant collection information**
2. **Field Trip - Common deciduous trees & shrubs of campus; Post Lab Exercises**
3. **Field Trip - Woodland herbaceous plants**
4. **Field Trip - Plants of the prairie**
5. **Field Trip - Common plants of wet areas**
6. **Field Trip - Common Weeds**
7. **Plant Family Identification (basal eudicots & monocots)**
8. **Plant Family Identification (core eudicots)**
9. **Plant Family Identification (core eudicots)**
10. **Plant Family Identification (grasses, sedges, rushes)**

## E. Office Hours

Office hours give students the opportunity to ask in-depth questions and to explore points of confusion or interest that cannot be fully addressed in class.

## F. Exams & Grading System

The semi-official dates of the exams for this course are:

- **Midterm 1:** 6<sup>th</sup> or 7<sup>th</sup> week.
- **Midterm 2:** 11<sup>th</sup> or 12<sup>th</sup> week.
- **Quizzes & Homework:** During the semester.
- **Lab exam:** 15th week.

– **Final Exam:** 16<sup>th</sup> week.

Your course grade will be based on your semester work as follows:

<b>Midterm 1:</b> 15 %	<b>Midterm 2:</b> 15 %	<b>Lab exam:</b> 20 %	<b>Final Exam:</b> 40 %
<b>Quizzes, Homework, Attendance &amp; Participation:</b> 10 %			

The grading distribution:

<b>A+</b>	<b>A</b>	<b>B+</b>	<b>B</b>	<b>C+</b>	<b>C</b>	<b>D+</b>	<b>D</b>	<b>F</b>
[95, 100]	[90, 95]	[85, 90]	[80, 85]	[75, 80]	[70, 75]	[65, 70]	[60, 65]	[0, 60]

### G. Student Workload

#	Teaching/Learning activities	Contact hours	Frequency	Total contact hours	Self-study hours	Total self-study hours	Student learning time
5	Lecture	3	15	45	2	30	75
2	Tutorial	0	0	0	0	0	0
0	Lab\practical	2	15	30	1	15	45
5	Homework	0	4	0	2	8	8
4	Quiz	0.5	2	1	1	2	3
6	Midterm	1.5	2	3	5	10	13
7	Final Exam	2	1	2	12	12	14
<b>Total</b>				<b>81</b>		<b>77</b>	<b>158</b>

The independent self-study is approximately 5 hours per week.

### H. Student Attendance/Absence

Only three situations will be considered as possible excused absences:

- Occurrence of a birth or death in the immediate family will be excused. (“Immediate family” is defined by the University as spouse, grandparents, parents, brother, or sister).
- Severe illness in which a student is under the care of a doctor and physically unable to attend class will be excused. Students are not excused for a doctor's appointment. Do not make appointments that conflict with rehearsals. Notes from the University Health Center will be accepted.

## [Executive Rules for Study Regulations and Exams](#)

[goo.gl/ykm7t3](http://goo.gl/ykm7t3)

