

Ministry of Higher Education and Scientific research



University of Salahaddin- Erbil

College of Agriculture Engineering Sciences

Departments: Horticulture.

Subject: Plant Taxonomy (Theory)

Course Book – Year 2

**Lecturer's name: Assist. Prof. Dr. Serwan Taha Al-Dabbagh
and Dr. Ali Mala Khedir Galalaey**

Academic Year: 2023/2024

Course Book

1. Course name	Theoretical Plant Taxonomy
2. Lecturer in charge	Ali Mala Khedir Galalae
3. Department/ College	Field crops and Medicinal Plants Dept.
4. Contact	e-mail: ali.galalae@su.edu.krd Tel: +9647504556045 +9647805556045
5. Time (in hours) per week	Theoretical: 2h
6. Office hours	
7. Course code	
8. Teacher's academic profile	There is no doubt that the teacher as a main factor of the teaching process, has a very good and important role in performance the teaching program and preparing the students, he is the follower of the results of teaching process and try to progress this process. The teacher is an affected factor among the teaching factors, and has effect on the student's characters and their future, therefor; the teacher must beware in his treatment with the students and the teaching staff. For all the progress that take place in the world, in all the fields, such as cultural, social, scientific, technology, etc. ... , the teacher must suit himself with all these changes and benefit from them in order he can finally to reach these benefits to all peoples that he treat with them.
9. Keywords	
10. Course overview:	<p>Plant Systematics is an introduction to the morphology, evolution, and classification of land plants. The objective is to present a foundation of the approach, methods, research goals, evidence, and terminology of plant systematics and to summarize information on the most recent knowledge of evolutionary relationships of plants as well as practical information vital to the field. Systematics, gives a general overview of the concepts and methods of the field of systematics. An introduction to the definition, relationships, classification, and importance of plants and summarizes the basic concepts and principles of systematics, taxonomy, evolution, and phylogeny must be involved. Evolution and Diversity of Plants, describes the characteristics and classification of plants. The beginning student may be given a basic understanding of the evolution of Green and Land Plants, Vascular Plants, Woody and Seed Plants, and Flowering Plants evolutionary approach to plant systematics makes learning the major plant groups and their features conceptually. The student may learn to recognize and know the basic features of the major lineages of plants, diagnostic features that a student might use to recognize a plant family, and some economically important uses of family members. Plant collecting and documentation emphasizes both correct techniques for collecting plants and thorough data acquisition, the latter of which has become increasingly important today in biodiversity studies and conservation biology. Information on herbaria and data information systems reviews the basics of herbarium management, emphasizing the role of computerized database systems in plant collections for analyzing and synthesizing morphological, ecological, and biogeographic data. A list of characters used for detailed plant descriptions may give, this list is useful in training students to write descriptions suitable for publication. Students need to learn to draw, in order to develop their observational skills. Finally, I would like to propose that each of us, instructors and students, pause occasionally to evaluate why it is</p>

that we do what we do, this offer these suggestions as possible goals: 1- to realize and explore the beauty, grandeur, and intricacy of nature; 2- to engage in the excitement of scientific discovery; 3- to experience and share the joy of learning.

11. Course objective:

Taxonomy is a science that includes identification, nomenclature, and classification of objects, and is usually restricted to objects of biological origin; when limited to plants, it is often referred to as systematic botany. Determination of the taxonomic categories is depended on the different characters such as roots, stems, leaves, floral parts, fruits, seeds, plant habit, and habitat; as well as the new fields which depend on the information in Biochemistry, Cytology, Genetics, and Plant Anatomy. The science that deals with the study, nomenclature, and identification of different types of plants, and depends on special rules, principles, and methods is called Plant Taxonomy, while the scientific study of the variations and interactions among plants called Systematic Botany, and the word Classification mean division or arrangement.

12. Student's obligation

The role of students and their obligations throughout the academic year involve their attendance in the lectures, drawing all the plates and plant specimens concerning to the lecture, and completion of all daily (quizzes) and monthly tests, exams, and preparing some herbaria plant specimens, as well as collecting fresh plant specimens within the field trips during spring and summer seasons.

13. Forms of teaching

Different forms of teaching will be used to reach the objectives of the course: definitions, discussions and conclusions, plates and shapes by using Data-show (in power point) as well as using the white board to illustrate the lecture or sides of the lecture for the students.

14. Assessment scheme

The monthly tests 3-4 tests, all these marks calculated as the yearly attempt mark, as well as additional marks will be given to the students whom bringing fresh plant specimens.

15. Student learning outcome:

The objective of the course is to present a foundation of the approach, methods, research goals, evidence, and terminology of plant systematics and to summarize information on the most recent knowledge of evolutionary relationships of plants as well as practical information vital to the field. The student may learn to recognize and know the basic features of the major lineages of plants, diagnostic features that a student might use to recognize a plant family, and some economically important uses of family members. When the student be able to recognize and identify the plant specimens, he will be able to work in the herbaria, preparing the Floras, national parks, botanical gardens, as well as preparing the scientific researches. The student will learn from Plant Taxonomy and all its subjects that: to realize and explore the beauty, grandeur, and intricacy of nature; to engage in the excitement of scientific discovery; and to experience and share the joy of learning.

16. Course Reading List and References:

- 1- Taxonomy of Vascular Plants: George H. M. Lawrence
- 2- علم تصنيف النباتات: علي حسين عيسى الموسوي
- 3- تصنيف النباتات البذرية: يوسف منصور الكاتب
- 4- Plant Systematics: M. G. Simpson
- 5- Plant Systematics: G. Singh
- 6- Practical Plant Identification: J. Cullen

17. The Topics:	Lecturer's name
<p>Week 1: Fundamental Components of Taxonomy, International Code of Botanical Nomenclature. (I.C.B.N.):</p> <p>Week2: Historical Retrospect</p> <ol style="list-style-type: none"> 1. Early History of Plant Taxonomy 2. Later Progress in Plant Taxonomy 3. Recent Systems of Classification <p>Week3: Modern Trends or Scope of Plant Taxonomy</p> <ol style="list-style-type: none"> 1. Anatomy 2. Palynology 3. Embryology 4. Cytology 5. Chemotaxonomy 6. Numerical Taxonomy <p>Week4: Plant Morphology</p> <p>ROOT: Origin of roots. Root system. Modified Roots STEM: Origin of stem. Part of a stem.</p> <ol style="list-style-type: none"> 1. Monopodial and Sympodial system of branching. 2. Stem habit types . 3. Modified stems <p>Week 5:LEAF: Origin of leaf</p> <ol style="list-style-type: none"> 1. Phyllotaxy. 2. Leaf incision (simple & compound leaves). 3. Leaf parts (of foliage leaves). 4. Venation <p>Week6: BRACT and BRACTEOLS:</p> <ol style="list-style-type: none"> 1. Types of bracts 2. Specialized bracts <p>Week7:FLOWER: Flower parts, Type of perianthcycly,</p> <ol style="list-style-type: none"> 1. Calyx, Number of sepals Some modiflicated shapes of calyx, 2. Corolla, Number of petals, Gamopetalous or Synpetalous shapes. <p>Week8: FLOWER SYMMETRY and APPENDAGES</p> <p>Week9:ANDROECIUM:</p> <p>Stamen Arrangement, Cycly, and Position. Stamen Attachment.</p> <p>Nectaries, Stamen fusion, Anthers parts, Type, and Attachment. Anthers dehiscence. Pollen grain, Pollen unite, Pollen polarity.</p> <p>Week10:GYNOECIUM, (Carpels, and Pistil):</p> <p>Carpel number, Ovary position, Placentation,</p>	<p>Assist. Prof. Dr. Serwan Taha Al-Dabbagh and Dr. Ali Mala Khedir Galalaey Every lecture takes 2 hrs.</p>

<p>Week11:INFLORESCENCE;</p> <p>Inflorescence parts, Inflorescence type, Inflorescence development, Specialized inflorescences.</p> <p>Week12:FRUITS; Fruit types, Simple fruit types, Fleshy (succulent) Fruits, Simple dry at maturity, Aggregate fruit types, Multiple fruit types.</p> <p>SEEDS; Seed endosperm type, Seed germination type, General Terminology, Color, Size, Shape,.</p> <p>Week13:PLANT IDENTIFICATION:</p> <p>Construction and Use of Keys, Types of keys:</p> <ol style="list-style-type: none"> 1) Indented or Yoked keys; 2) Bracketed or Parallel keys:. <p>Week14:Some an important (Angiosperms) families;</p> <ol style="list-style-type: none"> 1. Aster Family (Asteraceae): 2. Mustard Family (Brassicaceae): 3. Nightshade Family (Solanaceae): 4. Carrot Family (Apiaceae): <p>Week15:</p> <ol style="list-style-type: none"> 1. Grass Family (Poaceae): 2. Lily Family (Liliaceae): 3. Beech Family (Fagaceae): 4. Iris Family (Iridaceae): 	
<p>18. Practical Topics (If there is any)</p>	<p>Lecturer's name</p>
<p>19. Examinations: (Compositional)</p> <p>Q1/ When you can classify any plant?</p> <p>Q2/ What are the characters that use in plant taxonomy?</p> <p>Q3/ Did Bryophytes have roots? For any stage of plant they belong, compare them with Phanerophytes.</p> <p>Q4/ What is the fate of a bud? Reinforce your answer by a figure.</p>	
<p>20. Extra notes:</p>	

21. Peer review

I reviewed this course book and I approve its contents.

Signature:

Name: Assist. Prof. Dr. Serwan Taha Al-Dabbagh