**Department of Biology**

**College of Education**

**University of Salahaddin-Erbil**

**Subject: Theoretical Botany**

**Lecturer's name: Dr. Trifa Dhahir Saber**

**Academic Year: 2023/2024**

**Course Book**

**1. Course name** Theoretical Botany

**2. Lecturer in charge** Trifa Dhahir Saber

**3. Department/ College** Biology/Education

**4. Contact** e-mail: Trifa.saber@su.edu.krd

Tel: (optional)

**5. Time (in hours) per week** Theoretical: 2

**6. Office hours**

**7. Course code**

**8. Teacher's academic profile**

**9. Keywords**

**10. Course overview:**

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, teacher 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 her 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 herself with all these changes and benefit from them in order she can finally to reach these benefits to all peoples that he treat with them.

Botany, the study of plants, is one of the most interesting and important of scientific endeavors. Much of the interest in botany can be attributed to the value this science has for our understanding of life properties, to the intriguing beauty and appeal of plants, and to man intimate association with them. The great importance of plant study lies in the facts that plants are the sole producers of food and oxygen, and that if we are to maintain a world biological system that can continue to support man comfortably we must understand the essential plants well enough to avoid irreparable damage to the system. It is also important because plants provide thousands of products, in addition to food, upon which societies and civilizations

have been based and upon which we still depend.

**11. Course objective:**

As we know Biology is the branch which deals with the study of living forms. We can easily distinguish the living organisms in two kingdoms as Botany and Zoology respectively. The students of Biology department must study the specific branches of Botany in other three years in details such as Taxonomy, cytology, Genetics, plant physiology, Ecology, Psychology and plant anatomy. So it is necessary that biology students have to be aware of some basic information related to its study in other 3 years. That is in fact performed with his study of general Botany in first year. That is giving him the general basic idea about his subsequent studies.

**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 herbarial plant specimens.

**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.

**15. Student learning outcome:**

The objective of the course is to present a foundation of the approach, methods, research goals, evidence, and terminology of botany and to summarize information on the most recent knowledge of plants. 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, and some economically important uses of plant 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 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- **Sandra** A. and Brian A., 2006. Biology, understanding life.

2- **Peter** H. R., Georg B. J., Jonathan B. L., Susan R. S., 2005. Biology.

3- **Neil** A. C., Jane B. R., Lawrence G. M., Marth R. T., 2003. Biology concepts and connections.

4**- Gordon** U., Richard S., Randy M., 2001. Principles of Botany.

5- **Sylvia** S. M., Biology. 1998.

6- **Bilgrami**, K. S., Srivastava, L. M. and Shreemali, J. L., 1983. Fundamentals of Botany

7- **Fuller**, H. J., Carothers, Z. B., Pane, W.W. and Balbach, M. K., 1972. The Plant world.

**17. The Topics: Lecturer's name**

**Week l**:

Introduction, course outline, importance of biology sciences

**Week2**:

Definitions of important branches of biology:

Morphology, Taxonomy, Cytology, Embryology, Genetics, Evolution, Paleontology, Physiology, Ecology

**Week3**:

Importance of scope of Botany and some definitions related: Economic botany, Agriculture, Forestry, Horticulture, Plant pathology, Plant breeding, Microbiology, Pharmacognosy **Week4**:

The groups of plants:

Dr. Trifa Dhahir Saber

Every lecture takes

2 hrs.

Bacteria, Fungi, Algae, The mosses and their relatives, The common ferns and associated groups, Seed plants, gymnosperms and the angiosperms, dicotyledons and monocotyledons **Week5:**

The principles of plant classification

**Week6:**

Energy rich compounds

**Week7**:

Gross structure and activities of flowering plants

**Week8**:

Physiological activities, photosynthesis

**Week9**:

Physiological activities – Respiration

**Weekl0**:

Physiological activities, Diffusion, permeability, osmosis, imbibition

**Week11**:

Food and Food syntheses, Carbohydrates, Fats and oils

**Week12**:

Food and food syntheses - proteins – organic compound, other than foods –vitamins, Hormones, essential oils, organic acids. **Week13**:

Roots and the type of roots

**Week14**:

Stems and the type of stems

**Week15**:

Leaves and the type of leaves

**Week16**:

The flowers, essential organs of the flower, androecium, gynoecium, placentation, structure of ovule, embryo sac development.

**Week17**:

Pollination, pollination agents, type of pollination, fertilization.

**Week18**:

Inflorescences and type of inflorescences

**Week19**:

Seeds, structure of seeds, seed dispersal

**Week20**:

Plants and man-harmful effects of seed plants on human life, beneficial effects of seed plants on human life

**Week21**:

Plant propagation

**Week22**:

Ecology and distribution of plants

**Week23**: Genetics **Week24**:

The evolution of plants

**18. Practical Topics (If there is any)** Lecturer's name

**19. Examinations:** (Compositional)

**Q1/** Define the following: Anatomy, tap root, continuous vascular system, calyx, Adventitious buds.

**Q2/** Mention the differences between monocots and dicots.

**Q3**/ Diagram the biennial growth cycle.

**Q4**/ Discus the double fertilization in Angiosperms.

**Q5**/ Compare between trees and shrubs.

**20. Extra notes:**

**21. Peer review**

I reviewed this course book and I approve its contents.

Signature: Name: