

Ministry of Higher Education and Scientific research



**Department of Biology**

**College of Science**

**Salahaddin University -Erbil**

**Subject: General Botany I**

**Course Book – (1<sup>st</sup> Year) First semester**

**Lecturer's name Assistant Prof. Dr. Pakhshan M. Maulood**

**Lecturer's name Mahdi H. Ibrahim (Practical)**

**Academic Year: 2023/2024**

## Course Book

1. Course name	General Botany I
2. Lecturer in charge	Pakhshan M. Maulood (Theory) Mahdi H. Ibrahim (Practical)
3. Department/ College	Biology- Science
4. Contact	e-mail: <a href="mailto:pakhshan.maulood@su.edu.krd">pakhshan.maulood@su.edu.krd</a> e-mail: <a href="mailto:mahdi.ibrahim@su.edu.krd">mahdi.ibrahim@su.edu.krd</a>
5. Time (in hours) per week	Theory 2hr./week Practical 3hrs/week
6. Office hours	To be return to the schedule on the office door
7. Course code	SBIO305
8. Teacher's academic profile	<p><b>Dr. Pakhshan Mustafa Maulood CV:</b> Attained BSc degree in Biology 1991, Salahaddin University, College of Science. Also, MSc in the same Department in 1997. Attained Scientific title Assistant Prof. on 6-3-2012. In 2020 attained PhD degree at the College of Science- Salahaddin University in Eco-Physiology specification. I published over 15 manuscripts in local and international Journals and participated in several local conferences and workshops.</p> <p><b>M. Mahdi CV:</b></p> <p><b>EDUCATION</b></p> <p>1- Department of Biology, College of Science, Salahaddin University-Erbil, Erbil, Iraq. <b>MSc in Biology/Plant Physiology 2003-2006 Thesis project:</b> Effects of foliar application of Zinc, GA3 and their interaction on growth and development of pepper plants.</p> <p>2- Department of Biology, College of Science, Salahaddin University-Erbil, Erbil, Iraq. <b>B.Sc. in Biology 1992-1996 Research project:</b> Effects of light spectra on photosynthesis process.</p> <p><b>PROFESSIONAL EXPERIENCES</b></p> <p>1- Assistant Lecturer, College of Science, Salahaddin University-Erbil, Erbil, Iraq. <b>2006- 2022.</b></p> <p>2- Biology Assistant, College of Science, Salahaddin University-Erbil, Erbil, Iraq. <b>Feb. 1997 - March 2003</b></p>

	<p><b>TEACHING EXPERIENCES</b></p> <ol style="list-style-type: none"> <li>1- Practical Mycology</li> <li>2- Practical Algae and Archegoniate</li> <li>3- Practical Plant Physiology</li> <li>4- Practical General Botany</li> <li>5- Plant Physiology and Plant Growth Development (Tishk University)</li> </ol>
<p><b>9. Keywords</b></p>	<p><b>Botany, plant cell, plant tissue</b></p>
<p><b>10. Course overview:</b>                  Botany means the scientific study of plant life. The course includes the study of plant body in general also plant parts from the cells to the organs and the importance of plants in humans life. The effect of plants on the environment. Photosynthesis process which is the critical factor for most life features on our planet. At the end of the course, the students be able to understand botany in general, the plant body, tissues, growth, and other important subjects concerning to good understanding of plant biology.</p>	
<p><b>11. Course objective:</b>                  Botany is an excellent way to introduce you to the world of biology. In this year, we will examine a wide range of topics related to the biology of plants. We will investigate how the individual plant works: how plant bodies are built, how plants obtain and transport food and water, and how plants reproduce themselves. Upon these, the course is covering topics like plant cells, plant tissues, photosynthesis, plant growth, and structure of monocot and dicot seeds, soil and soil profile, alternation of generations and many other topics related to the plant science.</p>	
<p><b>12. Student's obligation</b>                  *<b>Exam policy:</b> Students should take 3 exams during the course There will be no make-up exams for absences students without medical reports.                  *<b>Classroom policies:</b>  <b>1- Attendance:</b> Students are strongly encouraged to attend class regularly.  <b>2- Lateness:</b> Lateness in class is disruptive  <b>3- Electronic devices:</b> All cell phones are to be turned off at the beginning of class and put away during the entire class.  <b>4-Talking:</b> During class please refrain from side conversations. These can be disruptive to your fellow students and your professor  <b>5- No Disrespectful to both the professor and your fellow students.</b></p>	
<p><b>13. Forms of teaching</b>                  Different forms of teaching will be used to reach the objectives of the course: PowerPoint presentations for the head titles and definitions and summary of conclusions, description of the types of pollution and their sources, and any other illustrations, besides worksheets, will be designed to let the chance for practicing on several aspects of the course in the classroom.                   Graduate students will be required to review a scientific paper that relates to one of the course topics. The review will consist of a paper that is at a maximum of five pages (typed) in length and an oral presentation of the review (15 minutes in length). The goal is to</p>	

have each student relate to the ecology. The format for the paper and presentation will be discussed in class.

#### 14. Assessment scheme

Component	Date	Percent
Exam 1		50
Exam 2		50

#### 15. Student learning outcome:

After completion of this course, you will be able to:

- Define common terms used in botany.
- Identify structure and shape of plants.
- Identify plant parts.
- Understanding plant growth.
- Understanding the relationship between humans and plants.

#### 16. Course Reading List and References:

- Bendre A., and P.C. Pande .2008. *Introductory Botany*, 4<sup>th</sup> revised edition. New Delhi: Pastogi Publications.
- Raven P. H., R.F.Evert, and S.E. Eichhorn .2005. *Biology of Plants*, 7<sup>th</sup> ed. New York: W.H. Freeman and Company Publishers.
- 1- • Stern. K. R. 2006. *Introductory Plant Biology*, 9<sup>th</sup> ed. New York: McGraw - Hill. Higher Education.

#### 17. The Topics: (Theory)

Lecturer's name

Week one: Introduction to botany.

Lecturer's name

Week Two: Botany and their branches and classification of plant kingdom.

Week Three: Plant cell (living components).

Week Four Plant cell (Non-living components).

Week Five & Six: Plant tissue.

Week Seven: Examination.

Week Eight Morphology & anatomy of the root.

Week Nine: Morphology & anatomy of Steam.

Week Ten: Structure of seed & seed germination.

Week Eleven: Fruits & Types of Fruit

Week Twelve: Flower

Week Thirteen: Examination.

#### 18. The Topics: (Practical)

Lecturer's name

Week 1: Introduction

Week 2: The Scientific Method

Week 3: Cell Structure and Function

Week 4: Respiration

Week 5: Plastids

Week 6: Photosynthesis: Photosynthesis- Light Reactions

Week 7: Photosynthesis-“Dark” Reactions

<b>Week 8: Plant Tissues I (simple)</b>	
<b>Week 9: Plant Tissues II (complex)</b>	
<b>Week 10: Leaves</b>	
<b>Week 11: Types of leaves</b>	
<b>Week 12: EXAM I</b>	
<b>Week 13: Stems</b>	
<b>Week 14: Types of stems</b>	

**19. Examinations:**

**Q1/ Fill the following blanks: (40 Marks)**

1. Sub- kingdom Phanerogamae is divided into two division which are ..... and .....
2. .... is concerned with the relationships of fossil plants and thus touches systematic botany, evolution, morphology and geology.
3. Dry simple fruit are classified into....., ..... and .....
4. Dispersal of Seeds and Fruits take place by....., ....., .....
5. The mitotic division of meristematic cells presents at the root and shoot apex increases the length of the plant body. This is called the ..... The secondary meristem increases the diameter of the plant body and it is called the .....

**Q2/ Define the following: (14 Marks)**

1. Composite fruits
2. Tegmen
3. parthenocarp fruit
4. Seeds
5. Simple fruits
6. Hypogeal germination
7. true fruits

Answers:

**Q1/**

**1- Gymnosperms, Angiosperm.**

**2- Plaeobotany.**

**3- Dehiscent fruit (Capsular fruit), Dry indehiscent fruit or Achenial fruits, Shizocarpic or splitting fruits.**

**4- Wind, animal, water**

**5- Primary growth , secondary growth.**

**Q2/**

1- Composite or multiple fruits: define as a fruit developing from a complete inflorescence.

2- The inner layer of seed coat, which is very thin and papery.

3-. when the fruit is consisting after the pollination only.

4- Seed is fertilized (ripen), ovule consisting of an embryo enclosed by protective seed coats derived from the integuments having an embryo which lies in dormant phase

5- When fruit develops from a single ovary (a solitary pistil) of a single flower, it is called a simple fruit. e. g. Pea (*Pisum sativum* of family Fabaceae, rice (*Oryza sativa*) of family Poaceae.

6- In this type of germination, the epicotyl grows first and only the plumule is pushed out of the soil, while the cotyledons and all other parts remain at or below the soil surface.

7- when the fruit is consisting after the pollination & fertilization.

#### 20. Extra notes:

Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.

#### 21. Peer review

#### پیداچونہوہی ھاوہل

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.

(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).

ئەم كۆرسبووكە دەبیت لەلایەن ھاوئێكی ئەكادیمیەو سەیر بكریت و ناوهرۆكى بابەتەكانی كۆرسەكە پەسەند بكات و جەند وشەیهك بنووسیت لەسەر شیاوی ناوهرۆكى كۆرسەكە و واژووی لەسەر بكات. ھاوئێ ئەم كەسەیه كە زانیاری ھەبیت لەسەر كۆرسەكە و دەبیت پلەي زانستی لە مامۆستا كەمتر نەبیت.