**University of the Punjab, Lahore**

# Course Outline
# Semester – II

| Programme | BS Botany | Course Code | Bot-114 | Credit Hours | 2 |
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| **Course Title** | **Fundamentals of Plant Taxonomy (Theory)** | | | | |

## Introduction

This course is designed to provide a comprehensive introduction to the principles and practices of plant taxonomy along with practical experience in the identification and classification of plants. Students will explore the aims, objectives, and importance of plant taxonomy, delve into various classification systems, and understand the significance of plant nomenclature. The course also covers the morphological characteristics of different plant parts and examines the diagnostic characters, economic importance, and distribution patterns of key plant families. The course contains foundational knowledge essential for advanced studies in Botany and related fields.

## Learning Outcomes

On the completion of the course, the students will be able to:

- Articulate the Importance of Plant Taxonomy i.e., explain the aims, objectives, and significance of plant taxonomy in botanical science.
- Elaborate the history and features of artificial, natural, and phylogenetic classification systems, particularly those proposed by Linnaeus, Bentham & Hooker, and Takhtajan.
- Demonstrate an understanding of the principles of botanical nomenclature and the application of the International Code of Botanical Nomenclature (ICBN).
- Recognize and describe the key morphological features of various plant parts.
- Identify the diagnostic characters, economic significance, and distribution of major plant families such as Ranunculaceae, Brassicaceae, Fabaceae, and others.
- Effectively use identification keys to determine plant species and their families.
- Provide accurate technical descriptions of flowers from selected plant families

## Course Contents

- Introduction to Plant Taxonomy: Aims, Objectives and Importance.
- Classification: Brief History of Various Systems of Classification (Artificial, Natural and Phylogenetic) with emphasis on Linnaeus, Bentham & Hook and Takhtajan's system of Classification.
- Nomenclature: Introduction: Importance of Latin Names and Binomial Nomenclature with an Introduction to International Code of Botanical Nomenclature (ICBN), St. Louis Code.
- Morphology: Brief Account of various morphological characters of root, stem, leaf, Inflorescence, Flower, Placentation and Fruit Types.
- Diagnostic Characters: Economic Importance and Distribution Patterns of the following Plant Families: Ranunculaceae, Brassicaceae, Fabaceae, Rosaceae, Euphorbiaceae, Cucurbitaceae, Solanaceae, Lamiaceae, Apiaceae, Asteraceae, Liliaceae, Poaceae.

## Teaching Learning Strategies

- Student Centered approach
- Lecture based Examination
- Assignments
- Class discussions
- Quiz

## Assignments: Types and Number with Calendar

- Oral Presentations — Total marks:25
- Final group-work project

| Programme | BS Botany | Course Code | Bot-114L | Credit Hours | 1 |
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| **Course Title** | **Fundamentals of Plant Taxonomy (Lab)** | | | | |

**Lab Course Contents**

- How to describe a plant?
- Identification of Plants and their Families with the help of keys
- Description of Flowers (in technical terms) of following Families: Ranunculaceae, Brassicaceae, Fabaceae, Rosaceae, Euphorbiaceae, Cucurbitaceae, Solanaceae, Lamiaceae, Apiaceae, Asteraceae, Liliaceae and Poaceae.
- Field tours shall be undertaken to study and collect local plants. Students are required to submit Forty (40) fully identified herbarium specimens.
- Comparative study of plants to identify different groups.

**Textbooks and Reading Material**


1. Judd, W.S., Campbell, C.S., Kellogg, E.A., Stevens P.F. and Donoghue, M.J. (2015*). Plant Systematics; A phylogenetic Approach*, Sinauer, US.
2. Lawrence, G.H.M. (2007). *Taxonomy of Vascular Plants*. (2nd Ed.). MacMillan and Co. New York.
3. Moore, R.C., Clark, W.D. and Vodopich, D.S. (2003). *Botany*. McGraw Hill Company, U.S.A.
4. Panday, B.P. (2004). *A Text Book of Botany (Angiosperms).* S. Chand and Co. New Delhi.
5. Raven, P.H., Even, R.E. & Eichhom, S.E. (2010). *Biology of Plants.* W.H. Freeman and Company worth Publisher.
6. Simpson, M. G. (2018). *Plant Systematics* (3rd edition). Elsevier Academic Press, UK.
7. Singh, G. (2016). Plant Systematics; *An Integrated Approach* (3rd edition), University of Dehli, India.
8. Zahur, M.S. (1992). *The Taxonomy of Angiosperms.* Al-Hejaz Printers. Lahore.
9. Bell, A. D., & Bryan, A. (2008). *Plant form: an illustrated guide to flowering plant morphology*. Timber Press.
10. Kubitzki, K. T. (2007). In K Kubitzki. *The Families and Genera of Vascular Plants: IX Flowering Plants– Eudicots (Springer-Verlag: Berlin)*, 456-7.
11. Journal Articles/ Reports
12. Pakistan journal of Botany, Mycotaxon, Plant systematics and Evolution.


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