



**DEPARTMENT OF BOTANY**  
**Tentative Course Plan**

**Class: BS (Botany)**

**Semester- 5<sup>th</sup>**

**Session: Spring 2018-2022**

|                      |                          |  |               |
|----------------------|--------------------------|--|---------------|
| <b>Instructor</b>    | <b>Sadia Sarwar</b>      | <b>Email: botanist_iub18@yahoo.com</b> |               |
| <b>Course Title</b>  | <b>Plant Systematics</b> | <b>Program</b>                         | <b>BS</b>     |
| <b>Course Number</b> | <b>BOTA-01505</b>        | <b>Credit Hours</b>                    | <b>3(2+1)</b> |

**Lecture** day: .... period (00:00a.m to00: 00p.m), Room# 00

**Course Objective:**

**Plant systematic** is the study of kinds and diversity of organisms and the evolutionary relationships among them is called systematics or taxonomy. The study systematics gives the order and relationships among organism. This order and relationship arise from evolutionary processes. These studies also give description of the new species. It organizes the animals into groups (taxa). This grouping is based on degree of evolutionary relatedness.

**Methods of Teaching**

- Assigned readings
- Group activities & Discussion
- Audiovisual aids lectures
- Web-assisted instruction
- Student-Directed Teaching

**Resource Material**

**1. Text Books**

- Sofia, E., Ahmed, M., Ahmed, H. 2011. Hepatoprotective Potential of Selected Flora of Pakistan. VDM Verlag Dr. Mueller e. K.
- Books LLC. 2010. Flora of Pakistan. Books LLC, Books Group.
- Dennis, W.W. 2009. Contemporary Plant Systematics. Andrews University Press.
- Carvan,s Principles of Botany, by Tanveer Ahmed Malik. Carvan book house Lahore.

**2.Reference Books**

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**3.Research Papers**

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**4.Hot Research Papers**

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**5.Web Resources**

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**Office Help Hours**

**Grading**

Exam (Date to be announced)  
Mid- Exam (30%) Final Exam (50%)  
Problem Session/Assignments (20%)

**Problem Session**

.....day: 00 and 00 periods (0:00-00:00am), Room# 00

**SEQUENCE OF TOPICS TO BE COVERED**

| Lecturer # | Topics (outline of main topics and sub topics)  | Chapter # | Tutorial /Laboratory  |
|------------|---|-----------|---|
| 1          | Course introductory lecture.  |           |   |
| 2&3        | Importance and relationship with other sciences, Phases of plant taxonomy.  |           | Technical description of plants of the local flora and their identification upto species level.                 |
| 4&5        | Origin and radiation of angiosperms, their probable ancestors, when and how did the angiosperms evolve; the earliest fossil records of angiosperms. |           | Preparation of indented and bracketed types of keys.  |
| 6&7        | Concept of Species: What is a species? Taxonomic species, Biological species, micro and macro species, species aggregates.                          |           |   |
| 8&9        | Speciation: Mechanism of speciation, Mutation and hybridization, Geographical isolation, Reproductive isolation, Gradual and abrupt.                |           | Preparation of permanent slides of pollen grains by acetolysis method and study of different pollen characters. |
| 10&11      | Variation: Types of variation, Continuous and discontinuous, Clinal variation.  |           |   |

|                        |  |  |   |
|------------------------|--|--|---|
| 12&13                  | Systematic and Genecology/Biosystematics: Introduction and importance, Methodology of conducting biosystematics studies, various biosystematics categories such as ecophene, ecotype, ecospecies, coenospecies and comparium.                  |  |   |
| 14&15                  | Taxonomic evidence: Importance and types of taxonomic evidences: anatomical, cytological, chemical, molecular, palynological, geographical and embryological.  |  |   |
| 16                     | Class discussion, class test and quiz.   |  |   |
| <b>Mid Term Exam</b>   |  |  |   |
| 17&18                  | Nomenclature: Important rules of botanical nomenclature including effective and valid publication, typification, principles of priority and its limitation, author citation, rank of main taxonomic categories, condition for rejecting names. |  |   |
| 19&20                  | Classification: Why classification is necessary? Importance of predictive value.   |  | Preparation and submission of fully mounted and identified hundred herbarium.               |
| 21&22                  | Brief history , Different systems of classification with atleast one example of each ( Linnaeus, Bentham and Hooker, Engler ad Prantel, Cronquist, Takhtajan and Dahlgren).  |  |   |
| 23&24                  | Brief introduction of Numerical taxonomy.  |  |   |
| 25&26                  | General characteristics, distribution, evolutionary trends, phyletic relationships and economic importance of following:Apiaceae, Arecaceae, Asclepiadaceae, Asteraceae, Convolvaceae, Brassicaceae, Cannaceae.                                |  | Field trips undertaken for collection of flora from different ecological zones of Pakistan. |
| 27&28                  | Chenopodiaceae, Capparidaceae, Cucurbataceae, Cyperaceae, Lamiaceae,Liliaceae,Euphorbiaceae.   |  |   |
| 29&30                  | Fabaceae, Myretaceae, Papavaraceae, Poaceae, Ranunculaceae, Rosaceae, Solanaceae, Malvaceae.   |  |   |
| 31&32                  | Course/Discussion from session 1- 32   |  |   |
| <b>Final Term Exam</b> |  |  |   |

**Student Evaluation criteria:**

|                                     |             |
|-------------------------------------|-------------|
| Attendance                          | 5%          |
| Workshop / Assignments/Case study   | 5%          |
| Surprise Test/Sudden Test , Quizzes | 5%          |
| Class Participation                 | 5%          |
| Mid Term Paper                      | 30%         |
| Final Term paper                    | 50%         |
| <b>Total</b>                        | <b>100%</b> |

**Student Responsibilities:**

Students must attend class. Failure to attend class may result in failure in the course. Students must also arrive on time and remain in class for the entire period. Cellular Phones and Beeper must be Turned off (Proper classroom decorum [behavior] adopts, Course outlines and calendars explain requirements and assignments, students are responsible for knowing what they say. Students are also responsible for doing all assigned work on time. Excessive absences (more than 03) will result in "F Grade". Students may prepare Sketchbook for taking notes and for references.

**Instructor / Tutor**

**Approved by:**

**Chairman**