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| **FORMAN CHRISTIAN COLLEGE (Spring 2023)** |  | **CREDITS (3+1)** |
| BIOL221 (Sec.A)  Plant Form & Function |  | **Instructor**: **Dr. Aisha Saleem Khan**  **Lec: MWF**(11-12:15) S-341 **Lab**.(9-110:50) R S-(331) **E-Mail**: aishasaleemkhan@fccollege.edu.pk **Office**: 118 S-Block **Contact No**: 04299231586 **Office Hrs**: MWF12:00-1:00 |
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| **Overview** This course deals with structure of plants in relation to their functions, diversity of kingdom plantae, introduction to tissues of plants used in everyday life. Commercially important plants will be used from daily life for understanding the concepts, to make learning easier and to develop interest of students. Field trips and campus surveys will be conducted in order to provide opportunity to students to learn different groups of plants in their natural habitat.  **Objectives**: Major objectives of this course are:   * To understand plant architect in relation to its function * To provide students an opportunity to understand unity and diversity of plants * To become aware of the recent developments in plant sciences * To enable students to relate forms of different groups of plants with their structures   **Learning Outcomes**: After the completion of this course, students will:   * Understand plants forms in relation to their functions * Have a clear knowledge of structure of everyday plants * Develop interest in plants used in everyday life * Think critically and will be able to relate structure with functions   **Semester/Attendance Policy**:  **Plagiarism/cheating** cases are in accordance with FCCU policies  **Grading Policy:** Quizzes (10%), Class Participation/Activities (5%) Attendance (5%), Lab. (15%), Semester Assignment (20%) Mid-Term (20%) and Final Exam (25%)    **Assignments:**Students will present Projects on the Topics assigned and this activity will constitute 15% of the Total Grade    **Books Recommended** Flowering Plants: Structure & Industrial Products by Aisha S. Khan (Wiley U.K), A Color Atlas of Plant Structure By Bryan G. Bowes. Manson Publishing, Anatomy of Flowering Plants By Paula Rudall. Cambridge University Press  **Lab Manual:** will be available from s-block photocopier  **Teaching Methodology**: Campus surveys and field trips are important part of this course. Students will observe diversity and form and functions of different plants in campus and in the surroundings.  For lectures, white boards, multimedia, online videos and class rooms discussion will be part of teaching methodology. Important videos and information will also be discussed and shared through moodle |  | **Content (Week wise)** 1st. Introduction to major groups of plants: **Lab:** Mosses, ferns, conifers and flowering plants, Field trip **2nd**. Study of cells of plants used in daily life**Lab:** Collection and examination of cells of (oleander, roses and castor oil plant) **3rd** Introduction to tissues of plants used in daily life: Parenchyma, collenchyma and sclerenchyma  **Lab**: Study of tissues of **edible herbs** (spinach, coriander, mustard, mint) **(Quiz1)**  **4th & 5th**Xylem and Phloem: Genetic modification of **lignin for bioenergy crops** , Nicotine and Menthol translocation through vascular tissues  **Lab:** Observation of tissues of **ornamental plants** (marigold, chrysanthemum, daisies) and relating it with their structure, observation of Ja  **6th**: A special account on some commercially important **fibers** and their role in textile industry  Lab: Visit to local textile industry  **7th**: Epidermis: Plant **secretory structures**: Glandular Trichomes: Role in fragrance formation**, plants-based fragrances in industries, making of transgenic aromatic bacteria from roses**  **8th**. **MID-TERM EXAM**  **9th**. Organization of different organs of common plants: Roots, stems and leaves  **Lab**: Field survey of plants and section cutting of roots, stem, leaves of different plants in campus  **10th & 11****th**. Forms and functions of flowers of Campus: Case study of **Transgenic blue rose**, an account of flowers pigments and their uses in textile and floriculture, **flowers used as food colors,**  **(Quiz 2)** Lab: Field survey  **12th& 13th**. Life cycles of **Wheat, Corn, Daisies, Roses and Orange** plants  Lab: Observation of developmental stages of plants in field  **14th** An account of form and function of **edible flowers** (Quiz 3)  **15th. Discussion of Projects**  **FINAL EXAM** |