Forman Christian College



KAM-School of Life Sciences

Spring Semester-2023

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| **Course Name: Introductory Plant Biology** |
| **Course Code: BIOL 102** | **Course Type: Elective** | **Course Credits: 4**  |
| **Class Timings:**Section A (MWF): 9:00 am to 9:50 amSection B (Tu&Th): 9:30 am to 10:45 am**Lab Timings:**Section A (M): 11:00 to 12:50 amSection B (Th.): 11:00 to 12:50 pm | **Section: A & B**  | **Student Meeting Hours/ Office Hours:**Monday to Friday 1:00 PM to 2:00 PM Or By Appointment on WhatsApp |
| **Instructor Name: M. Rehan Siddiqi, Ph.D.** |
| **A Note from the Instructor:****I got my M.S from the University of Cincinnati, USA, and Ph.D. from Miami University USA. I am a Fulbrighter and did my post-Doc from Germany. I have been teaching Plant Biology for a long time. I love plants and I enjoy teaching. Teaching is fun for me. The great thing about teaching is that there is always more to learn. I am exhilarated going to class and upbeat when I leave.** **Based on my long association with the University, I was given the title of Professor Emeritus.****I expect my students to be competent and knowledgeable. I hope you will enjoy this course as much as I do.**  |
| **Instructor Contact Details**Email: mrehansiddiqi@fccollege.edu.pk Cell No: 03214697528Office: Room 403 Armacost BuildingOffice Extension: 504Guidelines for contacting instructor: I prefer email contact and WhatsApp for scheduling meeting times |
| **Course Material:****For lecture:**Required Text: Kingsley, Stern: Introductory Plant Biology, McGraw Hill, N.Y.Latest Edition of this book is available on line. I will put this on Moodle and expect each student to download it from Moodle. It is also available on U-tube *YouTube:* <https://www.youtube.com/watch?v=VHHsRMgsOxE>**For Lab:**Kingsley, Stern: Introductory Plant Biology Lab Manual. McGraw Hill, NY.Every student must purchase the lab manual from college bookstore. It is mandatory. |
| **Rationale**To introduce concepts central to the study of plant science and to provide “real world” applications of how plant biology affects our everyday lives. The lab portion of the course will support the lecture in reinforcing overriding principles.Prerequisite: Only for students who have studied Biology in higher secondary school/A -Level or equivalent**Audience**Majors and Non-majors who need to satisfy a laboratory science requirement. This is a General Education Course. |
| **Course Objectives**1. To define plant biology and identify characteristics common to all plants.
2. To study the importance of plant biology to society and their everyday life.
3. To introduce students to the basic features of plant cells with a specific emphasis on plant specific organelles, including an introduction to plant tissues
4. To introduce students to the basic anatomy and function of plant root, root, stem, and leaves.
5. To provide students with an understanding of plant physiological processes i.e., photosynthesis and respiration.
6. To introduce students to plant diversity and understand the life cycle of a moss, fern, pine, and lily.
7. To acquire fundamental knowledge of Mendelian genetics and molecular genetics.
8. To learn about the diversity of plants on the campus and to concentrate on different types of trees on campus and to learn their common names along with their human relevance.
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| **Student Learning Outcomes (SLOs)**1. Students will be able to understand the structure and function of plant cells, organelles, tissues, and tissue systems.
2. Student will be able to understand the structure and function of plant root, stem, and leaf. This outcome is built on the foundation material included in the first learning outcome.
3. Students will be able to understand the principles of photosynthesis and respiration.
4. Student will be able to understand the basic plant reproduction, including the concepts of life-cycles of a moss, fern, pine and lily.
5. Student will learn about the characteristics of groups of land plants.
6. Students will learn the basics of Mendelian Genetics and Molecular Genetics,
7. Students will be able to identify and tell the names of at least 10 trees on the campus and know their economic importance.
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| **‘Out-of-class Study Required**The students are required to take good class notes. Develop the groups of their choice and match their notes to remove any ambiguities. About 30 to 45 minutes revision of the class notes any time after the class would be highly beneficial to grasp and memorize the subject. A 4-credit hour course generally requires 1 hour of focused study per day. |
| **Course organization and Policies:****Attendance:**Attendance is mandatory in accordance with university policy. It is the student’s responsibility to discuss any absences with the instructor as soon as possible. Students are expected to attend all class meetings and fully participate in online assignments and discussions. If you no longer wish to be enrolled in this class, you need to officially withdraw from the course. Attendance will be checked at the start of each class. If you are late to class, it is your responsibility to check with the instructor to ensure you are not marked absent. Repeated tardiness may result in an absence. There are three lectures per week for section A and two lectures per week for section B. Each lecture is of 50 minutes duration for section “A” and for 75 minutes duration for section “B”. Each lecture will start on time and will end on time. Lectures topics are outlined in the attached syllabus. The lectures will be covering, clarifying, and expanding upon the concepts that are presented in the text. It is therefore strongly suggested that you read the relevant textbook before each class. Attendance is important in this class.***Do Not Be Fooled:*** The lecture outlines and notes are not a substitute for attending class. Come prepared to participate. Questions will be posed to stimulate discussion. Diagrams or illustrations will simplify difficult concepts and experimental methods when possible. To get the most out of this course, spend time thinking about the information presented in lectures, readings, and discussions.Questions are encouraged! Discussion and questions make a course more interesting. This is a general education course; therefore, there should be something of interest for everyone participating in the course. If you have difficulties understanding the material do not wait until you are completely lost. Come see me for help. |
| **Laboratory:**There is one lab per week. You must attend each lab. The labs are designed to give you an opportunity to expand on the material covered in the lecture. It gives you some hand on lab experience in plant biology. Your lab grade will be based on an assessment of your work in the lab and completion of work on the lab manual. It will also be based on your score in lab exams. |
| **Exams, Quizzes and Assignment:**All Examinations and Quizzes will be given in Lab periods. There will be two lecture exams and one lab exam during the term. Mid Term Exam will be of one-hour duration and the Final Exam will be of two-hour duration. Mid Term exam will constitute 20% and the final will constitute 30% of the grade. Lab exam will be of one-hour duration and will constitute 20 % of the grade. The first lecture exam will include the topics covered during the first seven weeks whereas the second exam (Final exam) will be based on 70% of the course covered after the seventh week and 30% will include review of the first seven weeks course. Final exam will be two hours duration. The format of the exams will be both objective and essay type (limited choice will be given in the long answer type questions).  There will be Two quizzes which would constitute 10% of the grades. No excuse will be accepted for missing a quiz, midterm, and final term exam. If a student does not appear in the quiz, mid-term, final term examination, he/she will be awarded ZERO points**. Makeup exam will not be given.**Assignments/report: Students are required to write one assignment during the semester that will be submitted latest by the last week of the semester. The topic will be given after the second week of the semester. The weightage of the assignment will be 15% of the gradeThere will be no tolerance for cheating/plagiarism. Any student caught cheating on the exam will be awarded zero point and may be dropped from the course. Detailed policy of classroom misconduct, cheating and plagiarism given in the Student Handbook will be strictly followed. Students are responsible for these directions given about dishonesty and plagiarism. |

**Weightage and Grading:**

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| **Activity** | **weightage** |
| **Midterm exam**  | 20% |
| **Final exam**  | 30% |
| **Lab exam**  | 20% |
| **Quizzes**  | 10% |
| **Assignment**  | 15% |
| **Attendance**  | 5% |
| **Total** | **100%** |

**Grading System:**

The grading system for the course is as follows:

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| **Grades** | **Quality Points** | **Numerical Value** | **Meaning** |
|  **A** | 4.00 | 93-100% | Superior |
|  **A-** | 3.70 | 90-92% |  |
|  **B+** | 3.30 | 87-89% | Good |
|  **B** | 3.00 | 83-86% |  |
|  **B-** | 2.70 | 80-82% |  |
|  **C+** | 2.30 | 77-79% | Satisfactory |
|  **C-** | 1.70 | 70-72% |  |
|  **D+** | 1.30 | 67-69% |  |
|  **D** | 1.00 | 60-66% | Passing |

**Important Dates for Section A:**

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| **QUIZ 1** | MONDAY, Nov. 29, 2021-11:00 AM |
| **QUIZ 2**  | MONDAY, Jan. 3, 2021- 11:00 AM |
| **Mid Term Exam**  | MONDAY December 13, 2021, 01:00 PM |
| **Lab Exam**  | MONDAY, February 14, 2022- 11:00 AM |
| **Final Exam** | To be announced in January 2022 |

**Important Dates for Section B:**

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| **QUIZ 1** | THURSDAY, December 2, 2021. |
| **QUIZ 2**  | THURSDAY, January 6, 2021. |
| **Mid Term Exam**  | MONDAY, December 13, 2021, 01:00 PM |
| **Lab Exam**  | THURSDAY, February 17, 2022 |
| **Final Exam** | To be announced in January 2022 |

**Course Outline**

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|  **WEEK Lecture Lab**  |
| **1** | **Sept. 11** | What is Plant Biology?An Introduction to Plant Biology OR Botany | Introduction & study of FCC trees |
| **2** | **Sept.16** | Biology of Cell | Microscopic study of cells |
| **3** | **Sept 23** | Biology of Cells | Mitosis |
| **4** | **Sept 30** | Biology of Cell | Plant Structure **QUIZ 1** |
| **5** | **Oct. 7** | Plant Structure | Plant structure |
| **6** | **Oct. 14** | Plant Metabolism | Plant structure **LAB EXAM 1** |
| **7** | **Oct. 21** | Plant Metabolism | **MIDTERM EXAM** |
| **8** | **Break** |
| **9** | **Nov.4** | Plant Metabolism | Photosynthesis  |
| **10** | **Nov. 11** | Plant Metabolism | Respiration |
| **11** | **Nov.18** | Plant Name and Classification | Meiosis **Quiz 2** |
| **12** | **Nov. 25** | Diversity of Plants | Survey of Kingdom |
| **13** | **Dec.2** | Genetics | Survey of Kingdom |
| **14** | **Dec. 9** | Genetics | Survey of Kingdom **QUIZ 3** |
| **15** | **Dec. 16** | Ecology | Genetics **LAB EXAM 2** |
| **16** | **December Holidays** |
| **17** | **Jan. 2** | Biotechnology |  |
| **Exhortation****Read this syllabus carefully. Your first assignment is “to read the entire syllabus before the beginning of the next class. Your final grade will be raised by 1 % if you e-mail the word ‘bonus’ to the instructor before the start of the next class”. Ask question where necessary. Relax and delve into the wonderful world of plants. You will enjoy it.** |

**Acknowledgement**

I acknowledge by signing below that I have received the syllabus for the course indicated above. I have reviewed the syllabus and understand the objectives of the course. Further, I understand how my performance will be evaluated and how my final grade will be determined. I am aware of my instructor’s office location, his office hours, and I also know how to contact him for help and/or clarification of course contents or procedures.

Date:-------------------------------------

Student Name: ----------------------------------------------------------------

Roll No: -------------------------------Serial No-------------------------------

Preferred Name (what do you want to be called?):-----------------------------------

Phone Number:---------------------------------------------------------------------------

Write one word that begins with your first name that says something about you:

Have you studied Biology at F.Sc. level, O level or at A Level.

Have you taken any online Biology courses before? If so give title of that course.

What do you want to be when you grow up?