



INSTITUTE OF EDUCATION AND RESEARCH
 Science faculty
 University of the Punjab, Lahore
Course Outline

Programme	BSSEd	CourseCode	SE-309L	CreditHours	1
CourseTitle	Botany-III Lab (Cell Biology, Genetics and Evolution)				
Course Introduction					
<p>This course is planned to provide adequate knowledge about morphology and functioning of cell, cellular organelles and mechanisms of cell division, study of genes and their inheritance patterns and concept of evolution. It is generally aimed to familiarize students with the cell structure and its functioning along with basic concepts of genetics.</p>					
Learning Outcomes					
<p>On the completion of the course, the students will:</p> <p>The learning outcomes will be: On completion the students will be able to understand Scientific Methods for Implementation in Applied Courses of Cell Biology, Genetics and Evolution.</p>					
Course Content				Assignments/Readings	
Week1	Cell Biology Practical1: Study of cell structure using Compound Microscope and elucidation of Ultrastructure from Electron Microphotographs.			Practical copy preparation	
	Introduction and performance				
Week2	Practical1: Study of cell structure using Compound Microscope and elucidation of Ultrastructure from Electron Microphotographs. Performance			Practical copy preparation	

	Resultsanddiscussion	
Week3	Practical2:MeasurementofCellSize.	Practicalcopypreparation
	Introductionanddiscussion	
Week4	Practical2:MeasurementofCellSize. Performance	Practicalcopypreparation
	Resultsanddiscussion	
Week5	Practical3:StudyofMitosisandMeiosis by Smear/Squash Method and from Prepared Slides.	Practicalcopypreparation
	Introductionandperformance	
Week6	Practical3:StudyofMitosisandMeiosis by Smear/Squash Method and from Prepared Slides. Performance	Practicalcopypreparation
	Resultsanddiscussion	
Week7	Practical4:StudyofChromosome Morphology and Variation in Chromosome Number.	Practicalcopypreparation
	Introductionandperformance	
Week8	Practical4:StudyofChromosome Morphology and Variation in Chromosome Number.	Practicalcopypreparation
	Resultsanddiscussion	
Week9	Practical5:ExtractionandEstimationof Carbohydrates, Proteins, RNA and DNA from Plant Material. Introductionandperformance	Practicalcopypreparation

	<p>Practical5:ExtractionandEstimationof Carbohydrates, Proteins, RNA and DNA from Plant Material.</p> <p>Resultsanddiscussion</p>	Practicalcopypreparation
Week10	<p>Genetics</p> <p>Practical1:GeneticProblemsrelatedto Transmission and Distribution of GeneticMaterial.</p>	Practicalcopypreparation
	Introductionandperformance	
Week11	<p>Practical1:GeneticProblemsrelatedto Transmission and Distribution of GeneticMaterial.</p>	Practicalcopypreparation
	Resultsanddiscussion	
Week12	<p>Practical2:IdentificationofDNAin PlantMaterial(Carmine/Orcein Staining).</p>	Practicalcopypreparation
	Introductionandperformance	
Week13	<p>Practical2:IdentificationofDNAin PlantMaterial(Carmine/Orcein Staining).</p>	Practicalcopypreparation
	Resultsanddiscussion	
Week14	<p>Practical3:Studyofsalivarygland chromosomes of Drosophila.</p>	Practicalcopypreparation
	Introductionandperformance	
Week15	<p>Practical3:Studyofsalivarygland chromosomes of Drosophila.</p>	Practicalcopypreparation
	Resultsanddiscussion	

Week16	Revision	
	Revision	
ReadingMaterial		
Materialwillbeprovided bythe teacher.		
TeachingLearningStrategies		
<ol style="list-style-type: none"> 1. LaboratoryWork 2. GroupWork 		
Assignments:TypesandNumberwithCalendar		
<ol style="list-style-type: none"> 1. Quiz 2. Presentation 3. WrittenTest 4. Class discussion 		