

**Institute of Zoology,
Faculty of Life Sciences
University of the Punjab, Lahore
Course Outline**



Programme	BS Zoology	Course Code	ZOOL-301	Credit Hours	2
Course Title	Entomology				
Course Introduction					
This course provides a comprehensive exploration of insect structure and function. Which include study of anatomical and physiological features of the insects for clear understanding of entomology. It includes study of general characters of insects, coloration, metamorphosis, mouthparts, comparative structures of all systems and reproduction					
Learning Outcomes					
On the completion of the course the student will be able to: 1. Learn the basic and advanced anatomical features of insects including external and internal structures. 2. explore physiological processes such as digestion, respiration, circulation, excretion and reproduction 3. Understand the ecological roles of insects, including their interactions with other organism and their impact on ecosystem. 4. Investigate the adaptations of insects to exploit diverse environments					
Course Content				Assignments/Readings	
Week 1	1. General characteristics of insects 2. Relationships with other Arthropods				
Week 2	1. General segmentation 2. Cuticle; detailed structure 3. Epidermal layer, its structure and function				
Week 3	1. cuticular outgrowths and appendages 2. sclerotization, Metamorphosis				
Week 4	1. head 2. Antennae				
Week 5	1. Different mode of ingestion 2. different types of mouthparts				
Week 6	1. legs, modifications and functions 2. wings: different regions, Main veins and branches				
Week 7	1. secondary appendages and external genitalia 2. Endoskeleton				
Week 8	1. Digestive system of insects 2. excretory system				
Week 9	1. Respiratory system 2. circulatory system				
Week 10	1. sense organs 2. sound and light producing organs				
Week 11	1. Exocrine glands 2. Endocrine glands				
Week 12	1. pheromones 2. Function of pheromones				

Week 13	1. Reproductive organs 2. different types of reproduction in insects		
Week 14	1. Types of larvae 2. Types of pupae		
Week 15	Beneficial insects		
Week 16	Harmful insects		
Textbooks and Reading Material			
Textbook 1. General Text Book of Entomology. Imm. Richards and Davies, Vol.1. Additional Readings 2. The Insects: Structure and Function, 2000. Chapman. 3. Insect Physiology. Wiggles Worth. 4. Insect Physiology. Pattons. 5. Insect Ecology. Price. 6. Ecology: The Experimental Analysis Abundance. Krebs. 7. Modern Entomology, 1997. Tembhare. 8. Ecological Methods, 1978. T.R.E. Southood. 9. Elements of Insect Ecology, 1997. S.S. Yasbani and M.L. Agarwal.			
Teaching Learning Strategies			
Teaching will be a combination of class lectures, class discussions, and group work. Short videos/films will be shown on occasion.			
Assignments: Types and Number with Calendar			
The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance.			
Assessment			
Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written Assessment at the mid-point of the semester.
2.	Formative Assessment	25%	Continuous assessment includes: Classroom participation, assignments, presentations, viva voce, attitude and behavior, hands-on-activities, short tests, projects, practical, reflections, readings, quizzes etc. class Attendance
3.	Final Assessment	40%	Written Examination at the end of the semester. It is mostly in the form of a test, but owing to the nature of the course the teacher may assess their students based on term paper, research proposal development, field work and report writing etc.