

INSTITUTE OF EDUCATION AND RESEARCH

University of the Punjab, Lahore

BS Science Education (1-8)

Course Outline



Programme	BS Science Education (1-8)	Course Code	SE-310L	Credit Hours	1
Course Title	Zoology Lab- IV Animal Form and Function				
Course Introduction					
In this hands-on and interactive course, the students will explore the intricate relationships between form and functions in various organisms through a series of experiments and investigations, they will gain a deeper understanding of the structural and functional adaptations that enable animals to thrive in diverse environments.					
Learning Outcomes					
On the completion of the course, the students will:					
<ol style="list-style-type: none">1. Understand the fundamental principles of animal form and function2. Master proper dissection methods, including handling instruments, making incisions, and exposing internal structures3. Develop keen observational skills to identify and record anatomical details4. Create accurate and detailed drawings or diagrams of dissected specimens.					
Course Content				Assignments/Readings	
Week 1	1. Study and notes on skeleton of Labeo, Rana tigrina, Varanus, fowl and Rabbit, (Note for:1 Exercises of notes on the adaptations of skeletons to their function must be done.)			Practical Copy Preparation	
Week 2	1.1. Study and notes on skeleton of Labeo, Rana tigrina, Varanus, fowl and Rabbit, (Note for 1: Exercises of notes on the adaptations of skeletons to their function must be done.)			Practical Copy Preparation	
Week 3	2. Earthworm or leech; cockroach, freshwater mussel, Channa or Catla catla or Labeo or any other local fish, frog, pigeon and rat or mouse or rabbits are representative animals for study in dissections.			Practical Copy Preparation	
Week 4	2.1. Earthworm or leech; cockroach, freshwater mussel, Channa or Catla catla or Labeo or any other local fish, frog, pigeon and rat or mouse or rabbits are representative animals for study in dissections.			Practical Copy Preparation	
Week 5	3. Study of models or preserved brains of representative animals and notes on adaptations.			Practical Copy Preparation	

Week 6	4. Study of nervous system of earthworm and a fish.	Practical Copy Preparation
Week 7	5. Study of endocrine system in an insect and a mammal.	Practical Copy Preparation
Week 8	6. Study of different types of blood cells in blood smear	Practical Copy Preparation
Week 9	7. Study of heart, principal arteries and principal veins in a representative vertebrate	Practical Copy Preparation
Week 10	8. Study of respirator system in cockroach or locust and a vertebrate representative	Practical Copy Preparation
Week 11	9. Study of excretory system in an invertebrate and a vertebrate representative	Practical Copy Preparation
Week 12	10. Study of nutritive canal in an invertebrate and a vertebrate representative	Practical Copy Preparation
Week 13	11. Study of male reproductive system in an invertebrate and a vertebrate representative	Practical Copy Preparation
Week 14	12. Study of female reproductive system in an invertebrate and a vertebrate representative.	Practical Copy Preparation
Week 15	13. Study of hormonal influence of a reproductive function	Practical Copy Preparation
Week 16	14. Study of preserved advanced stages of avian and mammalian development for amniotic membranes and placenta	Practical Copy Preparation

Textbooks and Reading Material

Hickman, C. P. & Kats, H. L. (2000). Laboratory studies in integrated principles of zoology.

Singapore: McGraw Hill.

Miller, S. A. (2002). General zoology laboratory manual (5th ed) (International).

Singapore: McGraw Hill.

Teaching Learning Strategies

1. Discussion
2. Demonstration Method
3. Lecture Method
4. Project Method

Assignments: Types and Number with Calendar

1. Class presentation
2. written assignment
3. 01 assignment before mid-term exam and 02 assignment after mid-term exam