Institute of Zoology
Faculty of Life Sciences
University of the Punjab, Lahore

Course Outline

Programme	BS Zoology	Course Code	ZOOL-319	Credit Hours	1
Course Title	**Physiology-II (Lab)**				

Course Introduction

Physiology refers to the scientific study of regular functions in living organisms. This study focuses on how certain organisms survive, work and function. It also studies how all aspects of the body of that organism, such as biological, physical, and chemical, are interrelated and vital to the survival of that organism.

Learning Outcomes

Following the completion of this course, each student should have:

1. An understanding of critical concepts, processes, and factual information in the performance of functions and changing conditions.
2. A knowledge of resources for finding the solution for strategies to sustain diverse forms of animal life kept and in wild in normal and abnormal conditions.
3. The ability to utilize knowledge of animal physiology in critical study and for making intelligent decisions in professional life.

Course Content		Assignments/Readings
Week 1	Study of respiratory pigments in various animals and haemoglobins in various vertebrates.	
Week 2	Study of the histological features of various organs / tissues through prepared slides.	
Week 3	Normal cardiac activity in amphibian model (Frog) and effect of temperature (warm and cold) on it.	
Week 4	Normal cardiac activity in amphibian model (Frog) and effect of drugs (adrenaline and acetylcholine) on it.	
Week 5	Normal cardiac activity in amphibian model (Frog) and effect of ions (calcium and potassium) on it.	
Week 6	Normal cardiac activity in amphibian model (Frog) and heart block.	
Week 7	Normal cardiac activity in amphibian model (Frog) and tetanization of heart.	
Week 8	Measurement and effects of various factors on blood pressure.	
Week 9	Blood pressure alteration in exercise.	
Week 10	Oxygen consumption in fish and effect of temperature (by dissolved oxygen meter) and terrestrial animal (mouse). Oxygen consumption (by respirometer).	
Week 11	Oxygen consumption in terrestrial animal (mouse). Oxygen consumption (by respirometer).	
Week 12	Measure the oxygen consumption in aquatic animal (Fish) by	
	Winkler's method in laboratory.	
Week 13	Measure the oxygen consumption in a terrestrial animal (mouse) using lime water in laboratory.	
Week 14	Study of hemolysis in ionic and non-ionic solutions.	

Week 15	Design a project to study Body Mass Index of a group of subjects.	
Week 16	Design a project to study Blood Pressure of a group of subjects.	

Textbooks and Reading Material

Reference Books:

1. Tharp, G. and Woodman, D., 2015. Experiments in Physiology, 11th Ed. Prentice Hall, London.

Teaching Learning Strategies

Learning Objectives:

At the end of the course the student will be able to:

1. Understand on the molecular and cellular mechanisms of physiological function as the basis of unity in diverse animals e.g. membrane excitability, exchange of respiratory gases, removal of nitrogenous wastes tissue, osmotic and organ physiological mechanisms underlying animal homeostasis and temperature effects.
2. Grasp the development of performing the function developed at molecular and cellular level in the complexity of the animals such as chemical & nervous integration, respiratory and excretory functions.
3. Know the strategy acquired to perform the functions in diverse environment such as in dry & aquatic and cold and hot at molecular and cellular level and regulations to achieve strategy by chemical and nervous regulation at organ levels.
4. Comprehend the concepts in homeostasis and integration in sustaining the life in constantly changing conditions.

Teaching 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

Group Presentations:

- The sessional work will be a combination of written assignments, class quizzes, presentation, and class participation/attendance