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

Programme	BS Zoology	**Course Code**	**ZOOL-216**	**Credit Hours**	1
Course Title	**Lab. Biochemistry-I**				

Course Introduction

- To provide knowledge about macro molecules of eukaryotic cells and organelles, including membrane structure and dynamics;
- To provide in-depth knowledge about the polymerized organic compounds of life.
- To provide knowledge of the principles of bioenergetics and enzyme catalysis
- To provide knowledge of the chemical nature of biological macromolecules, their three-dimensional structure, and the principles of molecular recognition

Learning Outcomes

- Use basic laboratory skills and apparatus to obtain reproducible data from biochemical experiments;
- Implement experimental protocols, and adapt them to plan and carry out simple investigations

Course Content		**Lecture/Practical**
Week 1	1. Preparation of standard curve for glucose by *ortho*-Toluidine method.	Lecture/Practical
Week 2	2. Estimation of glucose from blood serum or any other fluid using *ortho*-Toluidine technique.	Lecture/Practical
Week 3	3. Tests for detection of carbohydrates in alkaline medium.	Lecture/Practical
Week 4	4. Tests for detection of carbohydrates in acidic medium.	Lecture/Practical
Week 5	Continue	Lecture/Practical
Week 6	5. Tests for detection of Disaccharides.	Lecture/Practical
Week 7	6. Tests to demonstrate relative instability of glycosidic linkage in Disacchaide (Sucrose) & polysaccharide (Stanch).	Lecture/Practical
Week 8	Continue	Lecture/Practical
Week 9	7. Detection of Non-Reducing sugars in the presence of reducing sugars.	Lecture/Practical Lecture/Practical
Week 10	8. Demonstration of Acid Hydrolysis of Polysaccharide	Lecture/Practical
Week 11	Continue	Lecture/Practical
Week 12	9. Determination of pKa values of an amino acid by preparation of titration curves.	Lecture/Practical

Week 13	Continue	Lecture/Practical
Week 14	10. Preparation of standard curve of proteins by Biuret method.	Lecture/Practical
Week 15	Continue	Lecture/Practical
Week 15	11. Estimation of any unknown concentration of protein using Biuret technique.	Lecture/Practical
Week 16	Continue	Lecture/Practical

Textbooks and Reading Material

1. Plummer, David T., 1990. An Introduction to Practical Biochemistry, 4th Ed. McGraw-Hill Book Company, London.
2. Wilson, K and Walker, J., 1994. Practical Biochemistry: Principles and Techniques, 4th Ed., Cambridge University Press.
3. Sawhney, S.K and Singh, R., 2008. Introductory Practical Biochemistry, Narosa Publishing House, New Delhi, India.

Teaching Learning Strategies

1. Reading and observation
2. Practical Performance
3. Presentation

Assignments: Types and Number with Calendar

1. 1st Assignment in Mid-term
2. 2nd Assignment in Final-term

Assessment

Sr. No.	Elements	Weightage	Details
1.	Midterm Assessment	35%	Written and Practical 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.
3.	Final Assessment	40%	Written and practical 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.