

Ministry of Higher Education and Scientific



Department of Pathological disease

Paitaxt Technical Institute

Subject: Biochemistry(II)

Course Book – 1st year student

2023/2024

Course Book

1. Course name	Biochemistry
2. Lecturer in charge	
3. Department/ College	Pathological disease/ Paitaxt Institute
4. Contact	
5. Time (in hours) per week	2 hours theoretical
6. Office hours	
7. Course code	
8. Teacher's academic profile	
9. Keywords	
10. Course overview: This course is intended to provide Biochemistry. Part of the course covers an introduction into measurements in Biochemistry and a short introduction into methods of Lipids and Protein.	
11. Course objective: The goal of this course is to introduce you to the principles of Biochemistry with emphasis on the fundamental methods used for Biochemistry analysis. The focus is on three important aspects: how to design experiments, how to analyse data, and how the tools of measurement work.	
12. Student's obligation Students are obligated to be prepared for each lecture by reading the relevant reading assignment before class (see the lecture schedule). Students should study the materials and work problems after each lecture as they are meant to reinforce your understanding of the lecture material. Work extra problems for each topic in addition to the assignments. The more problems you practice, the better you will understand the material.	
13. Forms of teaching PowerPoint presentation, lecture notes, and white board.	
14. Assessment scheme Two exams during the course period: 20% Quiz tests and homework: 10% Practical Course 20% Final Exam: 50% (20% for theoretical and 30% for practical)	
15. Student learning outcome: On successful completion of the course, students will be able: 1. To develop expertise relevant to the professional practice of Biochemistry 2. To develop an understanding of the range and uses of Biochemistry methods. 3. To establish an appreciation of the role of chemistry in Biochemistry.	

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4. To provide an understanding of chemical methods employed for elemental and compound analysis
5. To provide experience in some scientific methods employed in analytical and biochemistry
6. To develop skills in the scientific method of planning, developing, conducting, reviewing and reporting experiment.

16. Course Reading List and References:

1. Fundamentals of Analytical Chemistry; Eighth Edition, by Douglas A. Skoog, Donald M. West, F. James Holler and Stanley R. Crouch.
2. Quantitative Chemical Analysis, 9th ed., by Daniel C. Harris
3. Quantitative Chromatographic Analysis; by Thomas E. Beesley, Benjamin Buglio and Raymond P. W. Scott.
4. The Quantitative Analysis of Drug; by Garrat 3rd, 2005 Toppan & Co.
5. Lehninger: Principles of Biochemistry; by David Nelson, Michael Cox 4th, 2005
6. Outlines of Biochemistry; by Eric Conn & Paul K Stumpf 5th, 1987

17. The Topics: Theory

Practic

Aldehydes and Ketones	Week1	Identification of Carbohydrates Molisch's Test
Carbohydrates	Week2	Identification of Reducing Sugars Benedict's Test
Classify carbohydrate molecules	Week3	Barfoed's test used to differentiate monosaccharide from a disaccharide sugar.
Chemical properties of Carbohydrate	Week4	Bials test distinguish between pentose and hexose.
Reactions of carbohydrates	Week5	Seliwanoff's test is used to distinguish between ketoses and aldoses
Digestion and absorption of carbohydrates	Week6	Iodine test : forms colored complexes with polysaccharides.
Metabolism of Carbohydrates	Week7	Hydrolysis of Starch
Glycolysis	Week8	Qualitative Tests of Lipids
Krebs OR citric acid cycle	Week9	Test for solubility of lipids in polar & non-polar solvents
ATP from Citric acid cycle	Week10	Chemical Test of Lipids
Introduction of the lipids	Week11	Detection of cholesterol in samples (food, serum)
Classification & Chemical properties of lipids.	Week12	Rancidity of Lipids
Triglyceride	Week13	Review
Formation of Triglyceride	Week14	
Fatty acids	Week15	
Classification of Fatty acids	Week16	
Cholesterol	Week17	

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18. Examinations:

Will be covered in the lectures

19. Extra notes:

20. Peer review

Curriculum and course scheduling were peer reviewed.