

Gautam College of Pharmacy Hamirpur

Lesson Plan

Course: D. Pharmacy 2nd Year

Session: 2024-2025

Subject Name: Biochemistry & Clinical Pathology

Subject Code: ER20-23T

Total Teaching Hours: 75

Name of Teacher:

Each Lecture: 1 hour

Scope: This course is designed to impart basic knowledge on the study of structure and functions of biomolecules and the chemical processes associated with living cells in normal and abnormal states. The course also emphasizes on the clinical pathology of blood and urine.

Chapter No.	Topic No.	Title of Topic	Learning outcome	Schedule Date	Teaching aids to be used	Assignment Detail	Remarks
1	1	Introduction to Biochemistry Scope of Biochemistry in Pharmacy	After completion of the topic, students will understand the scope and biochemical organization of cells in pharmacy	12/08/2024	Hand Written Notes		
		Tutorial-1		12/08/2024			
	2	Cell and Its Biochemical Organization		16/08/2024			
2	3	Carbohydrates: Definition and Classification with examples, chemical properties	After completion of the topic, students will understand the classification, properties, and biological roles of carbohydrates.	17/08/2024	Hand Written Notes/PPT		
	4	Monosaccharides: Structure of Glucose, Fructose, Galactose		23/08/2024			
	5	Disaccharides: Structure of Maltose, Lactose, Sucrose		24/08/2024			
	6	Polysaccharides: Chemical Nature of Starch and Glycogen		30/08/2024			
	7	Qualitative Tests of Carbohydrates		31/08/2024			
3	8	Proteins: Definition and Classification of proteins Based on Composition and Solubility	After completion of the topic, students will understand the	02/09/2024	Hand Written Notes/PPT		

		Tutorial-2	classification,	02/09/2024			
	9	Definition and Classification of amino acid Based on chemical nature and nutritional requirements	structure, tests, and biological significance of proteins and amino acids	06/09/2024			
	10	Structure of Proteins: (Four Levels of Organization of protein structure)		07/09/2024			
	11	Qualitative Tests and biological role of proteins and amino acids		09/09/2024			
		Tutorial-3		09/09/2024			
	12	Diseases Related to Malnutrition of proteins		13/09/2024			
4	13	Lipids: Definition and Classification Structure and Properties of Triglycerides (Oils and Fats)		16/09/2024			
		Tutorial-4	After completion of the topic, students will understand lipid classification, triglycerides, cholesterol, and lipoprotein functions	16/09/2024	Hand Written Notes/PPT		
	14	Fatty Acid Classification Based on Chemical and Nutritional Requirements		20/09/2024			
	15	Structure and Functions of Cholesterol		21/09/2024			
	16	Lipoproteins: Types, Composition, and Functions		23/09/2024			
		Tutorial-5		23/09/2024			
	17	Qualitative Tests and Functions of Lipids		27/09/2024			
5	18	Nucleic Acids: Definition, Purine and Pyrimidine Bases	After completion of the topic, students will understand nucleic acid components,	28/09/2024	Hand Written Notes/PPT		
	19	Components of Nucleosides and Nucleotides		30/09/2024			
		Tutorial-6		30/09/2024			

	20	Structure of DNA (Watson and Crick Model)	DNA/RNA structures, and their biological roles	04/10/2024			
	21	Structure and Functions of RNA		05/10/2024			
6	22	Enzymes: Definition, Properties, IUB and MB Classification	After completion of the topic, students will understand enzyme classification, activity mechanisms, inhibition, and pharmaceutical importance	07/10/2024	Hand Written Notes/PPT		
		Tutorial-7		07/10/2024			
	23	Factors Affecting enzyme activity		14/10/2024			
		Tutorial-8		14/10/2024			
	24	Mechanism of Action of Enzymes		18/10/2024			
	25	Enzyme Inhibitors		19/10/2024			
	26	Therapeutic and Pharmaceutical Importance of Enzymes		21/10/2024			
		Tutorial-9		21/10/2024			
7	27	Vitamins: Definition and Classification	After completion of the topic, students will understand vitamin classification, sources, dietary requirements, and deficiency diseases	25/10/2024	Hand Written Notes/PPT		
	28	Sources and Chemical Nature		26/10/2024			
	29	Functions and Coenzyme Form of Vitamins		28/10/2024			
		Tutorial-10		28/10/2024			
	30	Recommended Dietary Requirements		04/11/2024			
		Tutorial-11		04/11/2024			
	31	Deficiency Diseases of Fat-Soluble Vitamins		08/11/2024			
	32	Deficiency Diseases of Water-Soluble Vitamins		16/11/2024			
8	33	Metabolism Metabolism of Carbohydrates Glycolysis		23/11/2024	Hand Written Notes/PPT		
	34	Metabolism of Carbohydrates: TCA Cycle		25/11/2024			
		Tutorial-12		25/11/2024			
	35	Glycogen Metabolism		29/11/2024		Proteins: Definition, classification, structure and diseases	

						related to malnutrition of protein	
	36	Regulation of Blood Glucose Level	After completion of the topic, students will understand metabolism pathways of carbohydrates, lipids, and amino acids, along with regulatory mechanisms	30/11/2024			
	37	Diseases Related to Abnormal Metabolism of Carbohydrates		02/12/2024			
		Tutorial-13		02/12/2024			
	38	Metabolism of Lipids: Lipolysis		06/12/2024			
	39	β -Oxidation of Fatty Acids		07/12/2024			
	40	Ketogenesis, Ketolysis		09/12/2024			
		Tutorial-14		09/12/2024			
	41	Diseases Related to abnormal Metabolism of lipid: Ketoacidosis, Fatty Liver, Hypercholesterolemia		13/12/2024			
	42	Metabolism of Amino Acids: General reactions of amino acid and its significance		16/12/2024			
		Tutorial-15		16/12/2024			
	43	Transamination, Deamination		20/12/2024			
	44	Urea Cycle		21/12/2024			
	45	Decarboxylation		23/12/2024			
		Tutorial-16		23/12/2024			
	46	Diseases Related to abnormal metabolism of amino acids		27/12/2024			
	47	Disorders of ammonia Metabolism		30/12/2024			
		Tutorial-17		30/12/2024			
	48	Phenylketonuria and Alkaptonuria		16/01/2025			
	49	Jaundice		18/01/2025			
	50	Biological Oxidation		22/01/2025			
		Tutorial-18		22/01/2025			
	51	Electron Transport Chain		23/01/2025			
	52	Oxidative Phosphorylation		29/01/2025			
		Tutorial-19		29/01/2025			
9	53	Minerals: Introduction of mineral	After completion of the topic, students will	30/01/2025	Hand Written Notes/PPT		
	54	Types of minerals		05/02/2025			

			understand the functions, deficiency diseases, and dietary roles of essential minerals				
		Tutorial-20		05/02/2025			
	55	Functions of minerals		06/02/2025			
	56	Deficiency Diseases Related to Minerals		13/02/2025			
	57	Recommended Dietary Requirements of Minerals		15/02/2025			
10	58	Water and Electrolytes: Distribution and Functions of water in the Body	After completion of the topic, students will understand water distribution, electrolyte balance, dehydration causes, and rehydration therapy	19/02/2025			
		Tutorial-21		19/02/2025			
	59	Water Turnover and Balance		20/02/2025			
	60	Electrolyte Composition of Body Fluids		22/02/2025	Hand Written Notes/PPT		
	61	Dietary Intake and Electrolyte Balance		27/02/2025			
	62	Dehydration: Causes of dehydration and Oral Rehydration Therapy		01/03/2025			
11	63	Introduction to Biotechnology	After completion of the topic students will understand fundamental concepts and applications of biotechnology	05/03/2025	Hand Written Notes/PPT		
		Tutorial-22		05/03/2025			
12	64	Organ Function Tests: Function of kidney	After completion of the topic, students will understand kidney and liver function tests, lipid profiles, and their clinical significance	15/03/2025			
	65	Routinely performed test to assess the function of kidney		20/03/2025		Report on complete blood count	
	66	Clinical significance of kidney function test		22/03/2025			
	67	Function of liver		26/03/2025			
		Tutorial-23		26/03/2025	Hand Written Notes/PPT		
	68	Routinely performed test to assess the function of Liver and their clinical significance		27/03/2025			
	69	Lipid Profile Tests and Clinical Significance		29/03/2025			

13	70	Introduction to Pathology of Blood and Urine Introduction	After completion of the topic, students will understand blood pathology markers, erythrocyte abnormalities, and urine constituent significance	02/04/2025	Hand Written Notes/PPT		
		Tutorial-24		02/04/2025			
	71	Lymphocytes and Platelets		03/04/2025			
	72	Role of lymphocytes and platelets in health and disease		05/04/2025			
	73	Erythrocytes: Abnormal Cells and Their Significance		09/04/2025			
		Tutorial-25		09/04/2025			
	74	Normal and Abnormal Constituents of Urine		10/04/2025			
	75	Significance of Urine Constituents		16/04/2025			

1. Total no. of Assignment given:

2. Model question paper given:

Yes/No

3. No. of extra Lectures delivered:

4. Feedback from student taken:

Yes/No

Signature of the subject teacher

Director cum Principal