Approved
at the meeting of the Department of Biochemistry and Clinical Biochemistry
of 23.01.2025. protocol no 16.
Head of Department, D.Ş.M., University Professor
_____ Tagadiuc Olga

THEMATIC PLAN
of the courses and laboratory work in Pharmaceutical Biochemistry (spring semester) for students of the Faculty of Pharmacy, second year, academic year 2024-2025

		Spring semester (4) - second year	
N	**Data**	**Course, Theme name**	**Laboratory work, Theme name**
1	**03-07.02**	1.The object of biochemistry. The structure, classification and biological role of carbohydrates. 2. Lipids: classification, structure, properties, methods of study and biopharmaceutical importance 3. Nucleic acids: classification, structure and properties. Biopharmaceutical importance.	Theme 1. Introductory talk. The importance of biochemistry for pharmacists. Biomolecules. Carbohydrates: classification, structure, properties, study methods and biopharmaceutical importance. Qualitative determination of carbohydrates.
2.	10-14.02		Theme 2. Lipids: classification, structure, properties, study methods and biopharmaceutical importance. Qualitative determination of lipids.
3	**17-21.02**	4. Proteins 1. Amino acids: classification, structure and properties. Biopharmaceutical importance. Primary structure of proteins 5. Proteins 2. Secondary, tertiary and quaternary structure of proteins. Classification of proteins. Physicochemical properties of proteins. Methods of studying proteins	Theme 3. Nucleic acids: classification, structure and properties. Biopharmaceutical importance. Quantitative determination of DNA and RNA
4	24.02-28.02		**Topic 4. Totalization of Chapter 1 "BIOMOLECULES"**
5	**03-07.03**	6. Enzymes 1: structure. Isoenzymes. Enzyme cofactors. Structure and biological role of vitamins B1, B2, B6, PP. Pharmaceutical implications. Classification and nomenclature	Theme 5. Proteins 1. amino acids: classification, structure and properties. biopharmaceutical importance. primary structure of proteins. Identification of amino acids by paper chromatography

		of enzymes.	method. Identification of amino acids.
6	10-14.03		Theme 6. Proteins 2. Secondary, tertiary and quaternary structure of proteins. Classification of proteins. Physico-chemical properties of proteins. Methods of studying proteins. Determination of total proteins in blood serum (biuretic method).
7	**17-21.03**	7. Enzymes 2: mechanism of action and enzymatic kinetics. Regulation of enzymatic activity. Biopharmaceutical importance of enzymes	Theme 7. Enzymes 1: structure, properties and classification. Identification of vitamins B1, B2, B6 and PP (B3)
8	24.03-28.03		Theme 8. Enzymes 2: mechanism of action and enzymatic kinetics. Regulation of enzymatic activity. Biopharmaceutical importance of enzymes. Determination of urinary α-amylase activity with stable starch substrate (Caraway method)
9	**31.03-04.04**	8. General notions about metabolism. Oxidative decarboxylation of pyruvic acid. Krebs cycle. Anaplerotic reactions. 9. Respiratory chain and oxidative phosphorylation. Mechanism of coupling of oxidation with phosphorylation. ATP synthase inhibitors.	**Theme 9. Totalization of chapter 2 "PROTEINS AND ENZYMES"**
10	07-11.04		Theme 10. General notions about metabolism. Oxidative decarboxylation of pyruvic acid. Krebs cycle. Determination of pyruvate in urine
11	**14-18.04**	10. Carbohydrate metabolism 1: digestion and absorption of carbohydrates. Glycogen metabolism.	Theme 11. Respiratory chain and oxidative phosphorylation. Qualitative reaction for determining catalase activity
12	21-25.04		Theme 12. Carbohydrate metabolism 1: digestion and absorption of carbohydrates. Glycogen metabolism.
13	**28.04-02.05**	11. Carbohydrate metabolism 2: glycolysis. Gluconeogenesis. Pentose phosphate pathway. Fructose metabolism. Biochemical mechanisms of blood glucose regulation	Theme 13. Carbohydrate metabolism 2: glycolysis. Gluconeogenesis. Pentose-phosphate pathway. Fructose metabolism. Biochemical mechanisms of blood glucose regulation. Glucose dosage - glucose oxidase method
14	13-16.05		**Theme 14. Totalization of chapter 3 "BIOENERGETICS AND CARBOHYDRATES METABOLISM"**

15	**19-23.05**		**Theme 15. EVALUATION OF STUDENTS' INDIVIDUAL WORK**

N O T E: The course is fully taught by D.Ş.B., university lecturer, Simionică Eugeniu;
Lecture duration – 2 hours, practical work – 3 hours.