

Summary of the working program of the academic discipline

«**Biological chemistry**»

(name of the academic discipline)

General Educational Program of higher education (specialist's degree programs)

33.05.01 Pharmacy

code, name of the specialty

Department: Biochemistry named after G.Ya. Gorodisskaya

1. The purpose of mastering the discipline: participation in the formation of relevant competencies: **GPC-1, GPC-2.**

2. Position of the academic discipline in the structure of the General Educational Program (GEP).

2.1. The discipline refers to the core part of Block 1 of GEP HE.

3. Deliverables of mastering the academic discipline and metrics of competence acquisition

Mastering the discipline aims at acquiring the following universal (UC) or/and general professional (GPC) or/and professional (PC) competencies

№	Competence code	The content of the competence (or its part)	Code and name of the competence acquisition metric	As a result of mastering the discipline, the students should:		
				know	be able to	possess
1.	GPC-1	Able to use basic biological, physical-chemical, chemical, mathematical methods for the development, research and examination of medicines, the manufacture of medicinal products	GPC-1.2. Applies basic physical-chemical and chemical analysis methods for the development, research and examination of medicinal products and medicinal plant raw materials	Rules of work and safety precautions in chemical laboratories, with reagents, instruments; structure and biochemical properties of the main classes of biologically important compounds. Principles of biochemical analysis;	Use knowledge to analyze the essence of general pathological processes and the mechanism of action of drugs; independently work with educational, scientific, popular science literature, the Internet for profession	Techniques for working with basic technologies for converting information: text, spreadsheet editors, techniques for working on the Internet for professional activities.

				application of biochemistry methods in the production and analysis of drugs.	al activities.	
2.	GPC-2	Able to apply knowledge about morphofunctional features, physiological conditions and pathological processes in the human body to solve professional tasks	GPC-2.1. Analyzes the pharmacokinetics and pharmacodynamics of medicines based on knowledge about morphofunctional features, physiological conditions and pathological processes in the human body	The main metabolic pathways of biotransformation of drugs, their transformation and regulation; the role of cell membranes and their transport systems in the body's metabolism; the chemical and biological essence of the processes occurring at the molecular and cellular levels in the body in normal and pathological conditions.	Interpret the data of physical-chemical, biochemical examinations in the professional activity of a pharmacist. Use both structural formulas and a schematic representation of the sequence of reactions of the main metabolic pathways and biochemical processes, use reference material	The skills of independent work on drawing up a plan for the use of biochemical methods in the work of a pharmacist and the formation of generalizing conclusions.
3.						

4. Volume of the academic discipline and types of academic work

Total labor intensity of the discipline is 7 CU (252 AH)

Type of educational work	Labor intensity	Labor intensity (AH) in semesters
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	volume in credit units (CU)	volume in academic hours (AH)				
			4	5		
Classroom work, including	7	252				
Lectures (L)	1	38	26	12		
Laboratory practicum (LP)*	2,6	92	60	32		
Practicals (P)						
Seminars (S)						
Student's individual work (SIW)	2,4	86	58	28		
Mid-term assessment						
credit/ exam (<i>specify the type</i>)	1	36				
TOTAL LABOR INTENSITY	7	252	144	72		

5. Sections of the academic discipline and competencies that are formed

№	Competence code	Section name of the discipline
1.	GPC-1	Structure and functions of proteins and amino acids. Enzymes. Introduction to metabolism. Biological oxidation. Oxidative phosphorylation. The cycle of di- and tricarboxylic acids (Krebs cycle). Hormones. Metabolism of proteins, amino acids. Metabolism of nucleoproteins. Protein synthesis. Carbohydrate metabolism. Lipid metabolism. Blood biochemistry. Liver biochemistry. Pharmaceutical biochemistry. Biochemistry of connective and muscular tissue. Biochemistry of nervous system.
2.	GPC-2	Structure and functions of proteins and amino acids. Enzymes. Introduction to metabolism. Biological oxidation. Oxidative phosphorylation. The cycle of di- and tricarboxylic acids (Krebs cycle). Hormones. Metabolism of proteins, amino acids. Metabolism of nucleoproteins. Protein synthesis. Carbohydrate metabolism. Lipid metabolism. Blood biochemistry. Liver biochemistry. Pharmaceutical biochemistry. Biochemistry of connective and muscular tissue. Biochemistry of nervous system.
3.		