Summary of the working program of the academic discipline

«BIOLOGY»
(name of the academic discipline)

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

33.05.01 PHARMACY

Department: BIOLOGY

1. The purpose of mastering the discipline (*participation in the formation of relevant competencies – specify the codes)***:**

1.1. The purpose of mastering the discipline: (participation in forming the relevant competencies). Universal competences:

UC-1. Able to realize critical analysis of problem situations based on a systematic approach, develop strategy actions

1.2. Tasks of the discipline:

As a result of completing the discipline, the student should

Know:

- general patterns of origin and development of life, properties of biological systems;
- basic patterns of evolutionary transformation of organs and systems of human organs;
- the laws of genetics and its significance for medicine; modern methods of studying human genetics; principles of medical genetic counseling;
- patterns of heredity and variability in individual development as the basis for understanding the pathogenesis and etiology of hereditary and multifactorial diseases;
- influence on the human body of biotic, abiotic and social factors.

Be able to:

- use educational, scientific, popular science literature, the Internet for professional activities;
- use laboratory equipment, work with a microscope;
- in the form of generalized schemes to display the processes occurring in the cell;
- solve problems in molecular genetics (DNA reduplication, protein biosynthesis);
- schematically depict chromosomes; using these notations, solve problems for mitosis, meiosis, gametogenesis;
- compose and analyze ideograms using the Denver Chromosome Classification System;
- solve problems in genetics - on the interaction of genes, linked inheritance, sex-linked inheritance, etc.
- compile pedigrees using standard notation; analyze pedigrees;
- explain the causes and possible mechanisms of the birth of children with chromosomal diseases;
- explain the nature of deviations in the course of development, leading to the formation of variants, anomalies and defects;
- to identify human parasites on micro- and macropreparations;
- solve situational problems in parasitology

Possess:

- methods of information transformation: text, spreadsheet editors, Internet search;
- skills of displaying the studied objects in drawings and diagrams;
- principles of identification of objects on micro- and macropreparations to substantiate the logical sequence of evolutionary events, stages of embryogenesis, levels of organization of

genetic material and processes of realization of genetic information, stages of development of parasites.

- methods for interpreting idiograms based on the Denver classification of chromosomes and methods for studying human genetics aimed at diagnosing and assessing the risk of hereditary diseases in a population.

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

2.1. The discipline Biology refers to the core part of Block 1 of GEP НЕ Б1.О.16
The discipline is taught in 1 semester/ 1 year of study.

2.2. The following knowledge, skills and abilities formed by previous academic disciplines are required for mastering the discipline:

1. biology, school course
2. chemistry, school course

2.3. Mastering the discipline is required for forming the following knowledge, skills and abilities for subsequent academic disciplines:

1. botany,
2. microbiology,
3. biological chemistry,
4. pharmacognosy,
5. pharmacology,
6. pathology,
7. philosophy.

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.	UC-1.	Able to realize critical analysis of problem situations based on a systematic approach, develop strategy actions	UC-1.1. Analyzes the problem situation as a system identifying its components and connections etween them GPC-1.2. Applies basic physical-chemical and chemical analysis methods for the development, research and examination of	- general patterns of origin and developm ent of life, properties of biological systems; - basic patterns of evolution ary	- use educa-tional, scientific, popular science literature, the Internet for profess-sional activities; - use laboratory	- methods of information transforma-tion: text, spreadsheet editors, Internet search; - skills of displaying the studied objects in drawings and diagrams;

			medicinal products and medicinal plant raw materials UC-1.3. Critically assesses reliability of information sources, works with conflicting information from different sources GPC-1.4. Applies mathematical methods and performs mathematical processing of data obtained during the development of medicines, as well as research and examination of medicines and medicinal plant raw materials	transformation of organs and systems of human organs; - the laws of genetics and its significance for medicine; modern methods of studying human genetics; principles of medical genetic counseling - patterns of heredity and variability in individual development as the basis for understanding the pathogenesis and etiology of hereditary and multi-factorial diseases; - influence on the	equipment, work with a micro-scope; - in the form of generalized schemes to display the processes occurring in the cell; - solve problems in molecular genetics (DNA reduplication, protein biosynthesis); - schematically depict chromosomes; using these notations, solve problems for mitosis, meiosis, gameto-genesis; - compose and analyze ideograms using the Denver Chromo-some	- principles of identi-fication of objects on micro- and macropreparations to substantiate the logical sequence of evolutionary events, stages of embryogenesis, levels of organization of genetic material and processes of realization of genetic information, stages of development of parasites. - methods for interpreting idiograms based on the Denver classification of chromosomes and methods for studying human genetics aimed at diagnosing and assessing the risk of hereditary diseases in a population.

				human body of biotic, abiotic and social factors.	Classification System; - solve problems in genetics - on the interaction of genes, linked inheritance, sex-linked inheritance, etc. - compile pedigrees using standard notation; analyze pedigrees; - explain the causes and possible mechanisms of the birth of children with chromosomal diseases; - explain the nature of deviations in the course of development, leading to the formation of variants,	

					anomalies and defects; - to identify human parasites on micro- and macropre parations; - solve situational problems in parasite-logy	
2.						
3.						

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

Total labor intensity of the discipline is ____ CU (___AH)

Type of educational work	Labor intensity		Labor intensity (AH) in semesters			
	volume in credit units (CU)	volume in academic hours (AH)	1	2		
Classroom work, including	1,8	66				
Lectures (L)	0,4	14	14			
Laboratory practicum (LP)*	1,4	52	52			
Practicals (P)	-	-	-			
Seminars (S)	-	-	-			
Student's individual work (SIW)	1,2	42	42			
Mid-term assessment	-	-	-			
credit/exam *(specify the type)*						
TOTAL LABOR INTENSITY	3	108	108			

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

№	Competence code	Section name of the discipline
1.	UC-1.	Molecular bases of heredity.
2.		Classical genetics.
3.		Ontogenesis and phylogenesis.
4.		Fundamentals of medical parasitology.