Summary of the working program of the academic discipline

« MATHEMATICS»
(name of the academic discipline)
General Educational Program of higher education (specialist's degree programs)
33.05.01 Pharmacy
Department: **MEDICAL BIOPHYSICS**

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1. The purpose of mastering the discipline participation in the formation of the competencies of UC-1, GPC -1, consisting in the formation of students' ability to carry out a critical analysis of problem situations based on a systematic approach, develop a strategy of actions and the ability to use basic biological, physico-chemical, mathematical methods for the development, research and examination of medicines.

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

2.1. The discipline «Mathematics» refers to the core part of Block 1 (B1.E.8) of GEP HE. The discipline is taught in 1 semester/1year of study.

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

№	Compe-tence 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 carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	*ID-1 UC-1.1.* Knows: methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis *ID-2 UC-1.2.* Able to: gain new knowledge based on analysis, synthesis, etc.; collect data on complex scientific problems related to the professional field; search for information and solutions based on action, experiment and experience	methods of systematic and critical analysis; methods of developing action strategies for identifying and solving a problem situation	apply the methods of a systematic approach and critical analysis of problem situations; develop a strategy of actions, make concrete decisions for its imple-mentation	methodology of systematic and critical analysis of problem situations; methodology of goal setting, determination of ways to achieve it, development of action strategies.

2.	GPC-1	Able to use basic biological, physico-chemical, mathematical methods for the development, research and examination of medicines.	*ID-1* *GPC-1.4.* Knows: mathematical and statistical analyses Able to: apply mathematical processing of data obtained in the development of medicines, as well as in the study and examination of medicines and medicinal plant raw materials.	mathematical and statistical analyses of quantitative and qualitative data characterizing the physical, biophysical, chemical and biochemical state of the drug and the patient's condition after the introduc-tion of the drug into the patient's body; the methodology of ma-thematical processing of the results of the physical characteris-tics of a biological object.	to use the principles of mathematical analysis of the elements of the obtained information, to solve the differential equations necessary for the creation and forecasting of mathematical models; to estimate the errors of a series of repeated measurements of physical reality; to implement statistical information, the work of experimental data, using null and alternative hypotheses, parametric and non-parametric criteria, correlation regression and variance analyses, calculate the basic charac-teristics of time series and predict the behavior of the system.	abstract thinking methodology for making conclusions about the results of measurements of the physical characteristics of biological objects and mathematical processing of the data obtained; the method of solving differential equations, necessary for the compilation and forecasting of mathematical models; the main statistical methods for evaluating measurement results.

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

Total labor intensity of the discipline is 2 CU (72 AH)

Type of educational work	Labor intensity		Labor intensity (AH) in semesters
	volume in credit units (CU)	volume in academic hours (AH)	1
Classroom work, including	**1, 2**	**44**	**44**
Lectures (L)	0,3	10	10
Laboratory practicum (LP)	0,9	34	34
Practicals (P)	***FSES are not provided***		
Seminars (S)	***FSES are not provided***		
Student's individual work (SIW)	**0,8**	**28**	**28**
Mid-term assessment	***FSES is not provided***		
CREDIT			
TOTAL LABOR INTENSITY	**2**	**72**	**72**

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

№	Competence code	Section name of the discipline
1.	UC-1, GPC-1	Fundamentals of mathematical analysis. The simplest differential equations.
2.	UC-1, GPC-1	Fundamentals of probability theory and descriptive statistics.
3.	UC-1, GPC-1	Statistical methods of research and data processing.
4.	UC-1, GPC-1	Mathematical optimization methods.