

Summary of the working program of the academic discipline

«PHYSICS, MATHEMATICS»

(name of the academic discipline)

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

31.05.01 General Medicine

Department: **MEDICAL BIOPHYSICS**

1. The purpose of mastering the discipline participation in the formation of UC-1 competencies consists in the formation of students' ability to carry out a critical analysis of problem situations based on a systematic approach, to develop an action strategy.

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

2.1. The discipline «Physics, mathematics» refers to the core part of Block 1 (B1.E.9) of GEP HE. The discipline is taught in 1 semester/1 year 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

№	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 carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy	<p><u>ID-1_{UC-1.1}</u> Knows: methods of critical analysis and evaluation of modern scientific achievements; basic principles of critical analysis</p> <p><u>ID-2_{UC-1.2}</u> 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</p>	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 implementation	methodology of systematic and critical analysis of problem situations; methodology of goal setting, determination of ways to achieve it, development of action strategies.

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

Total labor intensity of the discipline is 3 CU (108 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	66	
Lectures (L)	0,4	14	14	
Laboratory practicum (LP)*	1,4	52	52	
Practicals (P)	<i>FSES are not provided</i>			
Seminars (S)	<i>FSES are not provided</i>			
Student's individual work (SIW)	1,2	42	42	
Mid-term assessment	<i>FSES are not provided</i>			
CREDIT				
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	Fundamentals of mathematical analysis.
2.	UC-1	Fundamentals of probability theory and mathematical statistics.
3.	UC-1	Mechanics of liquids and gases. Acoustics.
4.	UC-1	Electrodynamics. Physical processes in tissues when exposed to current and electromagnetic fields. Fundamentals of medical electronics.
5.	UC-1	Optics. Quantum physics. Ionizing radiation. Basics of dosimetry.