

AMENDMENTS AND CHANGES TO THE CURRICULUM IN THE EDUCATIONAL DISCIPLINE «BIOORGANIC CHEMISTRY» FOR THE SPECIALTY 7-07-0911-01 «GENERAL MEDICINE»

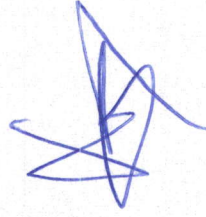
FOR 2024/2025 ACADEMIC YEAR

Amendments and changes		Basis/Reason
1. Changes have been introduced into the Explanatory Note (appendix 1)		Educational Plan for 2024/2025 academic year
2. Changes have been introduced into the Thematic Plan (appendix 2)		Educational Plan for 2024/2025 academic year
3. Changes have been introduced into the Educational Discipline Curricular Chart (appendix 3)		Educational Plan for 2024/2025 academic year
4. The list of practical skills has been updated according to the application N. 4		Endorsed by the Department of General Chemistry, protocol of the meeting No 6, May 22.05.2024
5. Contents of the topic "Introduction. Classification and nomenclature of organic compounds" is supplemented with data on simulation programs and online resources for visualizing the structure of organic molecules. The content of the topic "Spatial structure of organic molecules and stereoisomerism" is supplemented with data on databases of the structure of biologically important molecules.		Acts of introducing scientific research results into the educational process

The curriculum is revised and approved at the department meeting
(protocol No 6 of 22.05.2024)

Head of the department of General Chemistry

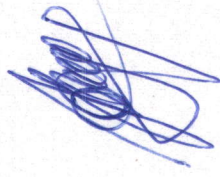
V.V. Khrustalev



APPROVED

Dean of the Medical Faculty for International Students

O.S. Ishutin



Changes in the explanatory note

Total number of hours for the study of the discipline is 90 academic hours. Classroom hours according to the types of studies: lectures - 9 hours (supervised student independent work – 3 hours), laboratory classes - 36 hours, student independent work (self-study) – 45 hours.

Intermediate assessment is carried out according to the syllabus of the specialty in the form of a graded credit (1 semester).

Form of higher education – full-time.

ALLOCATION OF ACADEMIC TIME ACCORDING TO SEMESTERS OF STUDY

ACCORDING TO SEMESTERS OF STUDY								
Code, name of the specialty	semester	Number of academic hours						Form of intermediate assessment
		total	in-class	including			out-of-class self-studies	
				lectures (including supervised independent work)	supervised student independent work	laboratory studies		
7-07-0911-03 «Dentistry»	1	90	45	9	3	36	45	Credit

THEMATIC PLAN

Section (topic) name	Number of class hours	
	lectures	laboratory classes
1. Theoretical bases of structure and general regularities of the organic compounds reactivity	1,5	14
1.1. Introduction. Classification and nomenclature of organic compounds	-	2
1.2. Chemical bond and interference of atoms in the organic molecule	-	2
1.3. Spatial structure of organic compounds and stereoisomerism	1,5	2
1.4. Reactivity of hydrocarbons	-	2
1.5. Reactivity of alcohols, phenols, thiols, amines. Acid-base properties of organic compounds	-	2
1.6. Reactivity of aldehydes and ketones	-	2
1.7. Reactivity of carboxylic acids and their functional derivatives	-	2
2. Biologically important heterofunctional compounds	3	4
2.1. Poly- and heterofunctional compounds, involved in life processes and underlying the most important drugs groups	1,5	2
2.2. Organic compounds used in dentistry	1,5	2
3. Biopolymers and their structural fragments. Low molecular bioregulators	4,5	18
3.1. Carbohydrates	1,5	4
3.2. Amino acids	1,5	2
3.3. Peptides and proteins		2
3.4. Nucleic acids	-	2
3.5. Lipids	1,5	2
3.6. Low molecular bioregulators		6
Total hours	9	36

ACADEMIC DISCIPLINE CURRICULAR CHART

№ п/п	Section (topic) name	number of hours		supervised student independent work	PRACTICAL SKILLS	Form of control	
		lectures ¹	laboratory seminars			Practical skills	текущей / промежуточной аттестации
1(2) semester							
	Lectures	6	54	3			
1	Spatial structure of organic molecules	1,5					
2	Poly- and heterofunctional compounds involved in vital processes			1,5			Electronic tests
3	Organic compounds in dentistry	1,5					
4	Carbohydrates	1,5					
5	Amino acids. Peptides and proteins			1,5			Electronic tests
6	Lipids	1,5					
	Laboratory classes		36				
1	Introduction. Classification and nomenclature of organic compounds		2		Modeling the structures of biologically important compounds and drugs using visualization simulation programs; converting their trivial and systematic names	Situational task	Survey, electronic tests
2	Chemical bonding and mutual influence of atoms in organic molecules		2		Modeling the structures of biologically important compounds and drugs using visualization simulation programs; converting their trivial and systematic names	Situational task	Survey, electronic tests

¹ Продолжительность лекции 1,5 академического часа (60 минут без перерыва). Продолжительность академического часа – 40 минут.

3	Spatial structure of organic molecules and stereoisomerism		2	Modeling the structures of biologically important compounds and drugs using visualization simulation programs; converting their trivial and systematic names	Situational task	Survey, electronic tests
4	Reactivity of hydrocarbons		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
5	Reactivity of alcohols, phenols, thiols, amines. Acid-base properties of organic compounds		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
6	Reactivity of aldehydes and ketones		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
7	Reactivity of carboxylic acids and their functional derivatives		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances 3. Modeling the structures of biologically important compounds and drugs using visualization simulation programs; converting their trivial and systematic names	Lab report (1,2) Situational task (3)*	Survey, electronic tests
8	Poly- and heterofunctional compounds involved in vital processes and underlying the most important groups of drugs		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests

9	Organic compounds used in dentistry		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
10	Carbohydrates. Monosaccharides		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
11	Carbohydrates. Oligo- and polysaccharides		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
12	Amino acids		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
13	Peptides and proteins		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances 3. Using databases to assess the structure and functionality of biological macromolecules; conversion of macromolecule visualization formats	Lab report (1,2) Situational task (3)*	Survey, electronic tests
14	Nucleic acids		2	1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests

15	Lipids			2		1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
16	Low molecular weight bioregulators			2		1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)	Survey, electronic tests
17	Concluding class "Biopolymers and their structural components			2				Test*
18	Concluding class "Structure and properties of individual classes of organic compounds. Biopolymers and their structural components, lipids"			2		1. Identification of organic compounds using functional qualitative analysis 2. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report (1,2)*	Credit
		9	3	6	3			

*This is a mandatory form of current certification

APPROVED

Head of the working group in the
direction of “Dentistry” of the Expert
Council on Practice-Oriented Training

_____ Denisova Yu.L.

**LIST OF PRACTICAL SKILLS IN THE ACADEMIC DISCIPLINE
BIOORGANIC CHEMISTRY FOR SPECIALTY 7-07-0911-03 «DENTISTRY»**

Practical skill	Form of control
1. Modeling the structures of biologically important compounds and drugs using visualization simulation programs; converting their trivial and systematic names	Situational task
2. Using databases to assess the structure and functionality of biological macromolecules; conversion macromolecule visualization formats	Situational task
3. Identification of organic compounds using functional qualitative analysis	Lab report
4. Carrying out safe work in a chemical laboratory: handling chemical glassware, burners, toxic and volatile substances	Lab report