THEMATIC SCHEDULE OF LECTURES on biological chemistry for the 2nd year students of dentistry faculty during the autumn term of 2022 – 2023 academic year

No	Topics and contents of lectures	Number of hours	Lecturer	Date				
Thematic modules 2. "Enzymes and coenzymes. Regulation of metabolism"								
1.	Biochemistry as a science. Enzymes. Regulation of enzymatic processes. Enzymology.	2	Prof. Iryna Fomenko	12.09				
Thematic module 4. "Carbohydrate metabolism and its regulation"								
2.	Carbohydrate metabolism and its regulation. Pathology of carbohydrate metabolism.	2	Prof. Iryna Fomenko	10.10				
Thematic module 5. "Metabolism of lipids"								
3.	Lipid metabolism and its regulation. Pathology of lipid metabolism.	2	Prof. Iryna Fomenko	7.11				
Thematic module 4. "Amino acids metabolism and its regulation"								
4.	General pathways of amino acid metabolism. Metabolism of specific amino acids, its regulation. Pathology of amino acid metabolism.	2	Prof. Iryna Fomenko	5.12				
	Totally:	8						

THEMATIC SCHEDULE

of practice and laboratory studies on biological chemistry for the 2nd year students of dentistry faculty during the autumn term of 2022 – 2023 academic year

No	The topic		Date					
Thematic module 1. "Introduction to Biochemistry"								
1.	Biochemistry as a science, objects of study and tasks of biochemistry, methods of biochemical research.		7.09					
	Thematic module 2. "Enzymes and coenzymes. Regulation of metabolism"							
2.	Investigation of physicochemical properties and structure of enzyme proteins. Mechanism of action and kinetics of enzymatic catalysis.		14.09					
3.	Regulation of enzymatic processes. Medical enzymology.	2	21.09					
4.	Study of the role of cofactors and coenzyme vitamins. The role of water- and fat-soluble vitamins in the metabolism of living organisms.		28.09					
	Thematic module 3. "Molecular basis of metabolism. Tricarboxylic acid cycle"							
5.	Basic patterns of metabolism. Research on the functioning, regulation and energy value of the tricarboxylic acid cycle.	2	5.10					
6.	Molecular basis of bioenergetics.	2	12.10					
	Thematic module 4. "Carbohydrate metabolism and its regulation	n"						
7.	Anaerobic glucose oxidation research.	2	19.10					
8.	Investigation of aerobic oxidation of glucose and alternative ways of monosaccharide metabolism.		26.10					
9.	Study of glycogen metabolism. Biosynthesis of glucose – gluconeogenesis.	2	2.11					
10.	Study of mechanisms of metabolic and hormonal regulation of carbohydrate metabolism. Diabetes mellitus.	2	9.11					
Thematic module 5. "Metabolism of lipids"								
11.	Investigation on the metabolism of triacylglycerols and complex lipids. Lipolysis and its regulation.	2	16.11					
12.	β -Oxidation and biosynthesis of fatty acids. Exchange of ketone bodies.	2	23.11					
13.	Study of biosynthesis and biotransformation of cholesterol. Pathologies of lipid metabolism.	2	30.11					
Thematic module 4. "Amino acids metabolism and its regulation"								
14.	General pathways of amino acid transformations in tissues.	2	7.12					
15.	Study of the processes of ammonia detoxification and urea biosynthesis. Synthesis of glutathione and creatine.		14.12					
16.	Investigation of specialized pathways of amino acid metabolism in tissues.	2	21.12					
Totally:		32						

THEMATIC SCHEDULE of individual work on biological chemistry for the 2nd year students of dentistry faculty during the autumn term of 2022–2023 academic year

No. Topic hours 1. History of biochemistry: development of biochemical research in Ukraine. 2 2. Connection of biochemistry with other biomedical sciences. Medical biochemistry. Clinical biochemistry. Biochemical laboratory diagnostics. 1 3. Structural and functional components of cells, their biochemical functions. Classes of biomolecules. Their hierarchy and origin. 2 4. Contribution of scientists of the Department of Biochemistry of the Lviv National Medical University to the development of biological chemistry. 1 5. Principles of collection and preservation of material for laboratory research. Errors in research. 2 6. Salivary enzymes: their specificity and role. 2 7. Levels of structural organization of enzymes. Multienzyme complexes, enzymatic ensembles, multifunctional enzymes, their advantages. 1 8. Principles and methods of detecting enzymes in biological objects. Units of activity and amount of enzymes. 3 9. Vitamins as irreplaceable biologically active components necessary for the human body. The history of the discovery of vitamins. Development of vitaminology in Ukraine. 1 10. Causes of exo- and endogenous hypo- and vitamin deficiency. 1 11. Use of water- and fait-soluble vitamins in dental practice. <th></th> <th>students of dentistry faculty during the autumn term of 2022–2025 academic</th> <th>year</th>		students of dentistry faculty during the autumn term of 2022–2025 academic	year
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Mechanisms of stimulation of release of hydrochloric acid.		Mechanisms of stimulation of release of hydrochloric acid.	_
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