

Confirmed by the Chair session
 Protocol No. 1 dated «27» August 2021
 The Head of the department _____ Prof. O. Sklyarov

THEMATIC SCHEDULE OF LECTURES
on biological chemistry for the 3rd year students of pharmaceutical faculty
during the autumn term of 2021 – 2022 academic year

No	Topics and contents of lectures	Number of hours	Lecturer	Date
<i>Thematic module 1. "Introduction to biochemistry. Simple and conjugated proteins. Enzymes"</i>				
1.	Enzymes: structure, properties and classification. Mechanism of action and regulation of enzymatic activity. Kinetics of enzymatic reactions.	2	Prof. Fomenko I.S.	7.09
2.	Role of cofactors in catalytic activity of enzymes. Regulation of enzymatic processes and analysis of enzymopathias appearance. Medical enzymology	2	Prof. Fomenko I.S.	21.09
<i>Thematic module 2. "General conceptions of metabolism and energy turnover"</i>				
3.	General principles of turnover of biomolecules and energy. Tricarboxylic acid cycle. Molecular principles of bioenergetics. Biological oxidation. Oxidative phosphorylation and its regulation.	2	Prof. Fomenko I.S.	5.10
<i>Thematic module 3. "Metabolism of carbohydrates and its regulation"</i>				
4.	Carbohydrates: structure, classification, functional significance. Metabolism of monosaccharides, anaerobic and aerobic oxidation of glucose.	2	Prof. Fomenko I.S.	19.10
5.	Regulation of carbohydrate metabolism and its disorders.	2	Prof. Fomenko I.S.	2.11
<i>Thematic module 4. "Metabolism of lipids and its regulation"</i>				
6.	Lipids: structure, classification and functional significance. Transport forms of lipids in blood. Metabolism of simple lipids.	2	Assoc. prof. Kobylynska L.I.	16.11
7.	Metabolism of complex lipids and its regulation. Correction of disorders of lipid metabolism by pharmaceutical preparations.	2	Assoc. prof. Kobylynska L.I.	30.11
Totally:		14		

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THEMATIC SCHEDULE
of practice and laboratory studies on biological chemistry for the 3rd year students of pharmaceutical faculty during the autumn term of 2021– 2022 academic year

No	Topic	Number of hours	Date
<i>Thematic module 1. "Introduction to biochemistry. Simple and conjugated proteins. Enzymes"</i>			
1.	Introduction to biochemistry. Methods of biochemical investigation. Amino acid composition, structure, physico-chemical properties, classification and functions of simple and conjugated proteins	2	7.09
2.	Enzymes: structure, physico-chemical properties, classification and mechanism of action of enzymes. Methods of detection of enzymes in biological material.	2	14.09
3.	Kinetics of enzymatic reactions. Regulation of enzymatic activity, determination of enzymatic activity.	2	21.09
4.	Regulation of enzymatic processes enzymopathias and mechanisms of their development. Application of enzymes as pharmaceutical preparations.	2	28.09
5.	Role of cofactors and coenzymatic vitamins in catalytic activity of enzymes.	2	5.10
<i>Thematic module 2. "General conceptions of metabolism and energy turnover"</i>			
6.	General principles of turnover of substances and energy. Functioning of citric acid cycle.	2	12.10
7.	Biological oxidation. Molecular basis of bioenergetics. Enzymes of biological oxidation.	2	19.10
8.	Oxidative phosphorylation and ATP synthesis. Inhibitors and uncouplers of tissue respiration and oxidative phosphorylation in respiratory chain of mitochondria	2	26.10
<i>Thematic module 3. "Metabolism of carbohydrates and its regulation"</i>			
9.	Glycolysis – anaerobic oxidation of glucose.	2	2.11
10.	Aerobic oxidation of glucose. Alternative pathways of carbohydrate metabolism.	2	9.10
11.	Catabolism and biosynthesis of glycogen. Regulation of glycogen metabolism Biosynthesis of glucose - gluconeogenesis,	2	16.10
12.	Mechanisms of metabolic and humoral regulation of carbohydrate metabolism. Disorders of carbohydrate metabolism.	2	23.10
<i>Thematic module 4. "Metabolism of lipids and its regulation"</i>			
13.	Catabolism and biosynthesis of triacylglycerols. Intracellular lipolysis and molecular mechanisms of its regulation.	2	30.10
14.	Metabolism of complex lipids and ketone bodies.	2	7.12
15.	β -Oxidation of fatty acids and their biosynthesis. Investigation of fatty acids metabolism.	2	14.12
16.	Biosynthesis and biotransformation of cholesterol. Regulation of lipid metabolism and its disorders.	2	21.12
Totally:		32	

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THEMATIC SCHEDULE of individual work on biological chemistry for the 3rd year students of pharmaceutical faculty during the autumn term of 2021 – 2022 academic year

No	The topic	Term	Number of hours	Forms of assessment
<i>Thematic module 1. "Introduction to biochemistry. Simple and conjugated proteins. Enzymes"</i>				
1	Methods of separation and purification of protein mixtures	1.09-15.09	4	The current control during practice classes activities
2	The role of vitamins in the mechanism of action of complex enzymes	15.09-21.09	3	
3	Use of isoenzymes in enzymodiagnosis of diseases	22.09-28.09	4	
4	Use of enzymes and their inhibitors as pharmaceuticals	29.09-5.10	4	
5	Composition, localization and function of multiple enzyme complexes in aerobic oxidation of substrates	6.10-11.10	3	
<i>Thematic module 2. "General conceptions of metabolism and energy turnover"</i>				
6.	Structure, conditions of action and regulation of ATP-synthetase of the internal membrane of mitochondria	12.10-18.10	3	The current control during practice classes activities
<i>Thematic module 3. "Metabolism of carbohydrates and its regulation"</i>				
7.	Hormonal regulation of carbohydrates metabolism	19.10-1.11	4	The current control during practice classes activities
8.	Modern pharmaceutical preparations in the treatment of carbohydrates metabolism	2.11-16.11	4	
<i>Thematic module 4. "Metabolism of lipids and its regulation"</i>				
13.	Disruption of lipids metabolism in atherosclerosis and obesity	17.11-30.11	3	The current control during practice classes activities
14.	Antihyperlipidemic pharmaceutical preparations in the regulation of lipids metabolism	1.12-6.12	4	
15.	Inherited diseases of complex metabolism	7.12-14.12	4	
16.	Disruption of lipids metabolism in atherosclerosis and obesity	15.12-21.12	4	
TOTALLY FOR THE AUTUMN TERM :			44	

