

Confirmed by the Chair session  
 Protocol No. 8 dated «30» December 2021  
 The Head of the department \_\_\_\_\_ Accos. prof. L. Kobylinska

**THEMATIC SCHEDULE OF LECTURES**  
**on biological chemistry for the 3<sup>rd</sup> year students of pharmaceutical faculty**  
**during the spring term of 2021 – 2022 academic year**

No	Topics and contents of lectures	Number of hours	Lecturer	Date
<b><i>Thematic module 5. “Metabolism of simple and conjugated proteins”</i></b>				
1.	General pathways of amino acid metabolism (deamination, transamination, decarboxylation of amino acids). Urea biosynthesis and alternative pathways of ammonia detoxification	2	Assoc. prof. Nasadiuk Ch.M	17.01
2.	Specific metabolic pathways of selected amino acids and their disorders. Glutathione and creatine, structure and physiological significance.	2	Assoc. prof. Nasadiuk Ch.M	31.01
<b><i>Thematic module 6. “Biochemical aspects of molecular biology and genetics”</i></b>				
3.	Biosynthesis and catabolism of purine and pyrimidine nucleotides and its regulation. Hereditary disorders of nucleotide metabolism.	2	Prof. Fomenko I.S.	14.02
4.	Biosynthesis of nucleic acids, mechanisms of replication and transcription. Biosynthesis of proteins and their post translational modification.		Prof. Fomenko I.S.	28.02
<b><i>Thematic module 7. “Molecular mechanisms of action of hormones and vitamins”</i></b>				
5.	Modern classification of hormones and molecular mechanisms of their effects. Hormones of central and peripheral glands	2	Assoc. prof. Kobylinska L.I.	14.03
<b><i>Thematic module 8. “Principles of pharmaceutical biochemistry and biochemistry of tissues”</i></b>				
6.	Role of blood in mechanisms of homeostasis of human organism. Respiratory function of red blood cells; regulation of acid-base balance. Pathobiochemistry of blood. Blood coagulation	2	Prof. Fomenko I.S.	28.03
7.	Biochemical functions of liver. End products of heme catabolism, pathobiochemistry of jaundices. Role of liver in biotransformation and detoxification of xenobiotics and endogenous toxic substances. Metabolism of drugs.	2	Assoc. prof. Kobylinska L.I.	11.04
8.	Biochemistry muscle tissue. Biochemistry of nerve tissue: specific features of metabolism in brain, neuromediators	2	Assoc. prof. Nasadiuk Ch.M	25.04
<b>Totally:</b>		<b>14</b>		

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**THEMATIC SCHEDULE**  
**of practice and laboratory studies on biological chemistry for the 3<sup>rd</sup> year students of**  
**pharmaceutical faculty during the spring term of 2021 – 2022 academic year**

No	The topic	Number of hours	Date
<b><i>Thematic module 5. “Metabolism of simple and conjugated proteins”</i></b>			
1.	General pathways of amino acid metabolism (deamination, transamination, decarboxylation of amino acids). Glutathion and creatine, structure and physiological significance.	2	13.01
2.	Urea biosynthesis and alternative pathways of ammonia detoxification. Specific metabolic pathways of selected amino acids and their disorders.	2	20.01
3.	Metabolism of cyclic amino acids. Disorders of cyclic amino acids metabolism.	2	27.01
<b><i>Thematic module 6. “Biochemical aspects of molecular biology and genetics”</i></b>			
4.	Biochemical functions of nucleotides and nucleic acids	2	3.02
5.	Catabolism of purine and pyrimidine nucleotides. Hereditary disorders of nucleotide metabolism.	2	10.02
6.	DNA replication and transcription of RNA. Mutations and their types, reparations of damaged DNA.	2	17.02
7.	Biosynthesis of proteins, initiation, elongation and termination steps. Post translational modification of proteins. Principles of gene engineering and production of transgenic proteins of medical significance.	2	24.02
<b><i>Thematic module 7. “Molecular mechanisms of action of hormones and vitamins”</i></b>			
8.	Functional role of water soluble vitamins.	2	3.03
9.	Functional role of fat soluble vitamins.	2	10.03
10.	Molecular mechanisms of action of hormones of protein and peptide nature, as well biogenic amines upon target cells. Humoral regulation of calcium homeostasis in human body.	2	17.03
11.	Molecular mechanisms of action of steroid and thyroid hormones upon target cells.	2	24.03
<b><i>Thematic module 8. “Principles of pharmaceutical biochemistry and biochemistry of tissues”</i></b>			
12.	Biochemistry of blood. Proteins of blood plasma, nonprotein nitrogen containing and nitrogen free components of blood plasma. Acid-base equilibrium of blood and its regulation.	2	31.03
13.	Coagulation, anticoagulation and fibrinolytic systems of blood	2	7.04
14.	Biological role and metabolism of hemoglobin. Patobiochemistry of porphiria and jandice	2	14.04
15.	Detoxification function of liver, microsomal oxidation, role of cytochrome P-450 system and flavine containing monooxygenases. Biotransformation of xenobiotics and endogenous toxins.	2	21.04
16.	Investigation of water and mineral metabolism	2	28.04
17.	Renal function. Biochemical composition of human urine in norm and pathology.	2	5.05
18.	Biochemistry of nervous and muscle tissues. Pathochemistry of psychotic disorders.	2	12.05
19.	Principles of pharmaceutical biochemistry.	2	19.05
<b>Totally:</b>		<b>38</b>	

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**THEMATIC SCHEDULE of individual work on biological chemistry for the 3<sup>rd</sup> year students of pharmaceutical faculty during the spring term of 2021 – 2022 academic year**

No	The topic	Number of hours	Forms of assessment
<b><i>Thematic module 5. “Metabolism of simple and conjugated proteins”</i></b>			
1.	Aminoaciduria: causes of development and their pharmacological correction	4	The current control during practice classes activities
<b><i>Thematic module 6. “Biochemical aspects of molecular biology and genetics”</i></b>			
2.	General concepts and values of technologies of recombinant DNA (genetic engineering)	3	The current control during practice classes activities
3.	Influence of antibiotics and other pharmaceuticals on cell matrix synthesis	3	
<b><i>Thematic module 7. “Molecular mechanisms of action of hormones and vitamins”</i></b>			
4.	Use of RIA method in quantitative determination of hormones	3	The current control during practice classes activities
5.	Protein-peptide factors of growth and proliferation of tissues	3	
6.	Antioxidant function of vitamins in the body	4	
7.	Complex vitamin preparations in the treatment of hypovitaminosis and other pathological conditions	4	
<b><i>Thematic module 8. “Principles of pharmaceutical biochemistry and biochemistry of tissues”</i></b>			
9.	Fractional composition of blood plasma proteins in normal and pathology	4	The current control during practice classes activities
10.	Hormonal mechanisms of regulation of water-mineral metabolism and kidney functions	4	
11.	Effect of pharmaceutical drugs on kidney function and physical and chemical properties of urine	4	
	<b><i>TOTALLY FOR THE SPING TERM :</i></b>	<b>36</b>	

