

The calendar-theme schedule of lectures to biochemistry for 2nd year students of the pharmaceutical faculty(clinical pharmacist) on the IV (spring) semester (2016-2017 academic years)

№	Date	Theme of lecture	Lecturer
5	12.01	Metabolism of simple proteins. Digestion of proteins in the digestive tract. Putrefaction of proteins in the colon. Amino acid pool. Common ways of amino acids metabolism: transamination, deamination, and decarboxylation. Sources and methods of ammonia neutralization (preliminary and final). Ornithine urea cycle. Metabolism acyclic and cyclic amino acids. Molecular disease.	Associate prof. D.O. Filchukov
6	26.01	Metabolism of nucleoproteins. Nucleic acids. Characteristics of DNA and different types of RNA. Metabolism of nucleoproteins: catabolism and biosynthesis of purine and pyrimidine nucleotides. Pathology of purine metabolism. Molecular biology. Stages of genetic information transfer: replication, transcription, translation. Molecular genetics: The regulation of gene expression. Molecular mechanisms of mutations.	Associate prof. D.O.Filchukov
7	9.02	Biochemistry of intercellular communication. Hormones. Biochemical and molecular mechanisms of its action. Characteristics of hormones central, peripheral and endoexocrine glands.	Associate prof. D.O.Filchukov
8	23.02	Vitamins and minerals as components of food. Basic concepts of vitaminology. Coenzymatic and non-coenzymatic functions of vitamins. Lipid-soluble vitamins, bioantioxidants.	Associate prof. D.O.Filchukov
9	9.03	Blood: functions, physicochemical constants, composition. Peculiarities of metabolism in erythrocytes. Hemoglobin.	Associate prof. D.O.Filchukov
10	23.03	Biochemistry of liver. Jaundices. Xenobiotics metabolism.	Associate prof. D.O.Filchukov
		Total	12

Head of Biochemistry Departament

Associate prof. Zaichko N.V.

The calendar-theme schedule of laboratory lessons to biochemistry for 2nd year students of the pharmaceutical faculty (clinical pharmacist) on the IV (spring) semester (2016-2017 academic years)

№	Date	Theme of laboratory lesson	Time (h)
19	13.01.	Simple proteins: the norm of proteins in nutrition, nitrogenous balance. Digestion and absorption, putrefaction of proteins in GIT. Determination of stomach juice acidity.	2
20	18.01.	Amino acids pool. General pathways of amino acids metabolism: transamination and decarboxylation. Biogenic amines. Determination of ALT activity in blood serum.	2
21	27.01.	Deamination of amino acids. Ways of ammonia neutralization. Quantitative determination of urea in biological fluids.	2
22	1.02	Specialised ways of amino acids metabolisms. Enzymopathies. Amino acid chromatography on the paper.	2
23	10.02	Nucleic acids: classification, structures, biological values. Metabolism of mononucleotides and its pathology. Qualitative and quantitative determination of uric acid.	2
24	15.02	Molecular biology. Genetic code. Replication. Transcription. Processing. Quantitative determination of DNA and RNA in biological fluids	2
25	24.02	Translation. Inhibitors of translation. Post-translational modification of proteins. Separation of casein from milk.	2
26	1.03	Regulation of genes expression in procaryotes and eucaryotes. Situational tasks. Molecular mechanism of mutations. Genetic engineering. Determination of phenyl pyruvate and homogentisic acid in urine.	2
27	10.03	Concluding session “Metabolism of simple proteins. Molecular biology”	2
28	15.03	Hormones: definition, classification, regulation of synthesis, common characteristics. Mechanisms of regulatory signals transduction. Apoptosis: concept, signal systems. Qualitative reactions on hormones.	2
29	24.03	Effects of hormones of central and peripheral endocrine glands. Qualitative reactions on thyroxin. Determination of 17- ketosteroids.	2
30	29.03	Hormones of endoexocrine glands. Endocrine control of Ca and P homeostasis. Influence of adrenalin and insulin on glucose levels in blood.	2
31	7.04	Vitamins: definition, history of discoveries, basic concepts of vitaminology. Classification, nomenclature. Vitamine-like compounds. Vitamins C and P. Characteristics of water-soluble vitamins of B group, its coenzymatic and non- coenzymatic functions, food sources, daily needs, symptoms of avitaminosis, medical use. Qualitative reactions on water-soluble vitamins	2
32	12.04	Lipid soluble vitamins: coenzymatic and non- coenzymatic functions, medical use. Symptoms and reasons of avitaminosis and hypervitaminosis. Qualitative reactions on lipid soluble vitamins.	2
33	21.04	Blood: functions, physicochemical constants. Nitrogen-containing and anazotic compounds. Rest nitrogen. Azotemies. Proteins of blood plasma. “Acute phase” proteins. Enzymes of blood. Quantitative determination of chlorides in blood.	2
34	26.04	Peculiarity of metabolism in erythrocytes. Hemoglobin: structure, types, connections, biosynthesis, its pathologies. Qualitative tests on heme in HHb. Adler's [benzidine] test.	2
35	5.05	Biochemistry of liver, its role in protein, lipid and carbohydrate metabolisms. Pigmentary metabolism. Catabolism of heme in tissues. Jaundices. Determination of total bilirubin in blood.	2
36	10.05	Detoxificational function of liver. General pathways of xenobiotics metabolism. Detection of anilin metabolites in urine. Amidopirin test.	2
37	19.05	Water-mineral metabolism. Water: structure, value. Hormonal regulation of water-mineral metabolism. Biochemistry of kidneys and urine. Normal and pathological components of urine. Qualitative reactions on Ca ²⁺ , Mg ²⁺ and PO ₄ ³⁻ .	2
38	24.05	Biochemistry of tissues. Biochemistry of nervous tissue: Peculiarities of chemical composition and energy supply processes in CNS. Molecular mechanisms of action of psychotropic and neurometabolic drugs. Types of receptors and mediators. Biochemistry memory and emotion. Qualitative reactions on acetylcholine.	2
39	2.06	Concluding session “Functional biochemistry”	2
40	7.06	Computer testing. Practical training, situational tasks.	2
		Total	44

