

THE CALENDAR-THEME SCHEDULE OF LECTURES
to biochemistry for 2nd year students of the stomatological faculty on the III (autumn)
semester (2017-2018 academic years)

№	Date	Theme of lecture	Lecturer	Time (h)
1	6.09	Biochemistry as sciences. Enzymes: structure, properties, classification. Isoenzymes. Multienzymes. Medical enzymology.	Associate prof. M.M.Chervyack	2
2	20.09	Cofactors and coenzymes: definitions, classification. Characteristics of cofactors of the 1-st and 2-nd groups. Vitamins. Basic concepts of vitaminology. Water- and lipid soluble vitamins.	Associate prof. M.M.Chervyack	2
3	4.10	Common metabolic pathways. Bioenergetics. Oxidative decarboxylation of pyruvate. Citric Acid Cycle. Biological oxidation. Tissue respiration. Oxidative phosphorylation.	Associate prof. M.M.Chervyack	2
4	18.10	Carbohydrates-1. Carbohydrates: definition, biological value. Digestions of carbohydrates in the GIT. Metabolisms: glycolysis, glycogenolysis, aerobic oxidation of glucose, pentose phosphate pathway.	Associate prof. M.M.Chervyack	2
5	1.11	Carbohydrates-2. Gluconeogenesis. Metabolism of glycogen. Metabolic pathways of fructose and galactose. Regulation and pathology of carbohydrates metabolism.	Associate prof. M.M.Chervyack	2
6	15.11	Lipids-1. Classification of lipids. Biological membranes. Lipid peroxidation. Antioxidants. Digestion of lipids in GIT. Transport forms of lipids. Intracellular lipolysis: oxidations of fatty acids and glycerol.	Associate prof. M.M.Chervyack	2
7	29.11	Lipids-2. Lipogenesis: synthesis of fatty acids, triglycerides and phosphoglycerides. Lipogenic and lipotropic factors. Ketone bodies: structures, roles. Ketogenesis and ketolysis. Metabolism of cholesterol, its role. Regulation and pathology of lipid metabolism.	Associate prof. M.M.Chervyack	2
8	13.12	Simple proteins. Value of proteins. Digestion and putrefaction of proteins. General pathways of amino acids metabolism: transamination, decarboxylation, deamination. Sources of ammonia, its neutralization. Individual metabolism of certain amino acids. Molecular diseases.	Associate prof. M.M.Chervyack	2
9	27.12.	Molecular biology. Hereditary information transfer. Genetic code. Replication. Transcription. Translation.	Associate prof. M.M.Chervyack	2
10	10.01.	Molecular genetics. Regulation of genes expression. Features of regulation of protein biosynthesis in eucaryotes. Mutations. DNA- reparation. Genetic engineering principles.	Associate prof. M.M.Chervyack	2
			Total	20

**Head of Biochemistry
Department**

Prof. Zaichko N.V.

**THE CALENDAR-THEME SCHEDULE OF LABORATORY LESSONS
to biochemistry for 2nd year students of the stomatological faculty on the III (autumn)
semester (2017-2018 academic years)**

№	Date	Theme of laboratory lesson	Time (h)
1	4 - 8.09	Introductory lesson. Safety rules. Subject and problems of biochemistry. Biomolecules. Simple and complex proteins: structures, properties, functions. Colour reactions to proteins and amino acids.	2
2	11-15.09	Enzymes: definition, nomenclature, classification, structures. Chemical natures. Specificity of enzymes action, dependences on temperature and pH.	2
3	18-22.09	Properties of enzymes. Activators and inhibitors of enzymes. Kinetics and energy. Influence of activators and inhibitors on amylase activity in saliva.	2
4	25-29.09	Cellular organization of enzymes. Isoenzymes, multienzymes. Main directions of medical enzymology. Quantitative determination of amylase activity.	2
5	2 - 6.10	Cofactors: definition, classification. The 1-st group of coenzymes, chemical natures, mechanisms of action. Qualitative reactions to vitamins C. Determination of catalase activity in blood.	2
6	9 - 13.10	The 2-nd group of coenzymes, non-vitamins and vitamins. Qualitative reactions to vitamins B ₁ , B ₆ , A and E as predictors of coenzymes.	2
7	16-20.10	Common metabolic pathways. Oxidative decarboxylation of pyruvate. Citric Acid Cycle. Comparison ROP of riboflavine and methyl blue.	2
8	23-27.10	Biological oxidation and tissue respiration. Oxidative phosphorylation. Chemiosmotic Mitchell's theory. Quantitative determination of ATP.	2
9	30.10-3.11	Concluding session by themes "Common metabolic pathways"	2
10	6 - 10.11	Carbohydrates: classification, structures, biological value. Metabolism of carbohydrates: glycolysis, alcoholic fermentation, Pasteur's effect, aerobic oxidation of glucose, energy balance. Quantitative determination of pyruvate. Quantitative determination of glucose in urine by Althausen. Glucotest.	2
11	13-17.11	Pentose phosphate pathway. Gluconeogenesis. Quantitative determination of fructose-1,6-diphosphate.	2
12	20-24.11	Glycogen metabolism. Glycogen storage diseases. Regulation and pathology of carbohydrates metabolism. Determination of glucose by glucose oxidase method.	2
13	27.11-1.12	Lipids: definition, classification. Biological membranes. Lipid peroxidation, arachidonic acid cascade. Digestion of lipids in GIT. Bile acids. Transport forms of lipids. Influence of bile on lipase activity.	2
14	4 - 8.12	Metabolism of lipids. Lipolysis: β -oxidation of fatty acids and glycerol. Determination of iodine number.	2
15	11-15.12	Lipogenesis: synthesis of fatty acids, triglycerides and phosphoglycerides. Lipogenic and lipotropic factors. Determination of triacylglycerols and phospholipids sum.	2
16	18-22.12	Metabolism of acetone bodies and cholesterol. Regulation and pathology of lipids metabolism. Qualitative and quantitative determination of cholesterol. Determination of acetone bodies in urine.	2
17	25 - 29.12	Concluding session by themes "Metabolisms of carbohydrates and lipids"	2
18	1.01-5.01 2018	Simple proteins metabolisms: the norm of proteins in nutrition, nitrogenous balance. Digestion of proteins. Putrefaction of proteins in GIT. Determination of stomach juice acidity.	2
17	8 - 12.01	General pathways of amino acids metabolism: transamination and decarboxylation. Biogenic amines. Deamination of amino acids. Ways of ammonia neutralization. Quantitative determination of ALT activity in blood serum. Quantitative determination of urea in biological fluids.	2
20	15-19.01	Specialised ways of acyclic and cyclic amino acids metabolisms. Determination of glutathione and cysteine sum.	2
Total			40