

PHARMACY - SCHEDULE OF THE BIOCHEMISTRY LECTURES
2011/12 II. semester

WEEK	DATE	TOPIC
1.	7th of February	Thermodynamics of biochemical processes. Role of proteins in the living systems, chemical composition. Formation and characterization of three-dimensional protein structure.
	10th of February	Molecular mechanism of enzyme catalysis Coenzymes and their functions Enzyme classes
2.	14th of February	Isoenzymes and multienzyme-complexes, units of enzyme activity, regulation of enzymes Kinetics of enzyme reactions
	17th of February	Process, regulation and importance of the citric-acid cycle Terminal oxidation and redox systems in the cell Oxidative phosphorylation, effect of uncoupling agents
3.	21st of February	Organic chemistry background of metabolism of carbohydrates and lipids
	24th of February	Glycolysis and its regulation Glycogenesis, glycogenolysis and their regulation
4.	28th of February	Gluconeogenesis, hexose-monophosphate-shunt, Connection of carbohydrate metabolism to other metabolic pathways
	2nd of March	Biosynthesis and transport of cholesterol Synthesis and usage of ketone bodies
5.	5th of March	Degradation of fatty acids. Energy-balance Synthesis of saturated fatty acids, eikozanoids Synthesis of fatty acids, neutral lipids and phospholipids
	9th of March	Hormonal regulation of blood glucose level, diabetes mellitus and its biochemical consequences
6.	12th of March	Removal of amino-acid nitrogen Urea cycle and its importance Participation of amino acids in the synthesis of nitrogen containing substances
	16th of March	National Holiday
7.	19th of March	Fate of the carbon-skeleton of amino acids Formation of C ₁ fragments, transportation and utilization
	23rd of March	Nucleotide metabolism, participation of nucleotides in the synthesis of substances with functional role Factors influencing nucleotide metabolism
8	26th of March	Structure of biological membranes, dynamics of membrane components Biochemical principles of membrane transport processes
	30th of March	Signal transduction systems and their basic characteristics Importance of signal transduction systems in the regulation of metabolic processes
9	2nd of April	The role of the liver in an organism's metabolism
	6th of April	Mechanism of biotransformation Biochemical effects of alcohols

10		SPRING BREAK (9th to 13th of April)
11	16th of April	Plasma proteins and their function Biochemical characteristics of red blood cells, basics of oxygen transport
	20th of April	Biochemical properties of white blood cells Biochemical principles of coagulation, fibrinolysis
12	23rd of April	Metabolism of the central nervous system Neurotransmitter receptors, pathways of neurotransmission Synthesis and inactivation of neurotransmitters
	27th of April	Fibrillar proteins of the extracellular matrix and types and properties of proteoglycans Importance of cell adhesion, cytoskeleton
13	1st of May	Holiday
	4th of May	Biochemical principles of the hypothalamo-hypophyseal system Production of thyroid hormones, its biochemical effects and Ca homeostasis
14	8th of May	Synthesis and of effect of steroid hormones
	11th of May	Structure of DNA, structure of chromosomes, euchromatin, heterochromatin, regulation of transcription, enhancer, silencer, difference between eukaryotic and prokaryotic gene expression RNA types, RNA polymerases, process of transcription, maturing of mRNA, mechanism of splicing, tissue-specific and development-dependent splicing, thalassemias, antisense RNA
15	15th of May	Qualitative composition of nutrition, macronutrients, micronutrients and nutrient fibers
	18th of May	Regulation at the level of the organism, adaptation reactions in stress situations, in labor, during pregnancy and lactation Regulation at the level of the organism, adaptation reactions in starvation and excess food intake