

**PHARMACY - SCHEDULE OF THE BIOCHEMISTRY LECTURES**  
2014/15 II. semester

<b>WEEK</b>	<b>DATE</b>	<b>TOPIC</b>
<b>1.</b>	<b>3<sup>rd</sup> of February</b>	Thermodynamics of biochemical processes. Role of proteins in the living systems, chemical composition. Formation and characterization of three-dimensional protein structure.
	<b>6<sup>th</sup> of February</b>	Molecular mechanism of enzyme catalysis Coenzymes and their functions Enzyme classes
<b>2.</b>	<b>10<sup>th</sup> of February</b>	Isoenzymes and multienzyme-complexes, units of enzyme activity, regulation of enzymes Kinetics of enzyme reactions
	<b>13<sup>th</sup> of February</b>	Process, regulation and importance of the citric-acid cycle Terminal oxidation and redox systems in the cell Oxidative phosphorylation, effect of uncoupling agents
<b>3.</b>	<b>17<sup>th</sup> of February</b>	Organic chemistry background of metabolism of carbohydrates and lipids
	<b>20<sup>th</sup> of February</b>	Glycolysis and its regulation Glycogenesis, glycogenolysis and their regulation
<b>4.</b>	<b>24<sup>th</sup> of February</b>	Gluconeogenesis, hexose-monophosphate-shunt, Connection of carbohydrate metabolism to other metabolic pathways
	<b>27<sup>th</sup> of February</b>	Degradation of fatty acids. Energy-balance Synthesis of saturated fatty acids, eikozanoids Synthesis of fatty acids, neutral lipids and phospholipids
<b>5.</b>	<b>3<sup>rd</sup> of March</b>	Biosynthesis and transport of cholesterol. Lipoproteins. Synthesis and usage of ketone bodies
	<b>6<sup>th</sup> of March</b>	Hormonal regulation of blood glucose level, diabetes mellitus and its biochemical consequences
<b>6.</b>	<b>10<sup>th</sup> of March</b>	Removal of amino-acid nitrogen Urea cycle and its importance Participation of amino acids in the synthesis of nitrogen containing substances
	<b>13<sup>th</sup> of March</b>	Fate of the carbon-skeleton of amino acids Formation of C <sub>1</sub> fragments, transportation and utilization
<b>7.</b>	<b>17<sup>th</sup> of March</b>	Nucleotide metabolism, participation of nucleotides in the synthesis of substances with functional role Factors influencing nucleotide metabolism
	<b>20<sup>th</sup> of March</b>	Structure of biological membranes, dynamics of membrane components Biochemical principles of membrane transport processes
<b>8</b>	<b>24<sup>th</sup> of March</b>	Signal transduction systems and their basic characteristics Importance of signal transduction systems in the regulation of metabolic processes
	<b>27<sup>th</sup> of March</b>	The role of the liver in an organism's metabolism
<b>9</b>	<b>31<sup>st</sup> of March</b>	Mechanism of biotransformation Biochemical effects of alcohols
	<b>3<sup>rd</sup> of April</b>	Plasma proteins and their function Biochemical characteristics of red blood cells, basics of oxygen transport

<b>10</b>		<b>SPRING BREAK</b>
<b>11</b>	<b>14<sup>th</sup> of April</b>	Biochemical properties of white blood cells Biochemical principles of coagulation, fibrinolysis
	<b>17<sup>th</sup> of April</b>	Metabolism of the central nervous system Neurotransmitter receptors, pathways of neurotransmission Synthesis and inactivation of neurotransmitters
<b>12</b>	<b>21<sup>st</sup> of April</b>	Fibrillar proteins of the extracellular matrix and types and properties of proteoglycans Importance of cell adhesion, cytoskeleton
	<b>24<sup>th</sup> of April</b>	Biochemical principles of the hypothalamo-hypophyseal system Production of thyroid hormones, its biochemical effects and Ca homeostasis
<b>13</b>	<b>28<sup>th</sup> of April</b>	Synthesis and of effect of steroid hormones
	<b>1<sup>st</sup> of May</b>	HOLIDAY
<b>14</b>	<b>5<sup>th</sup> of May</b>	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
	<b>8<sup>th</sup> of May</b>	Qualitative composition of nutrition, macronutrients, micronutrients and nutrient fibers
<b>15</b>	<b>13<sup>th</sup> of May</b>	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
	<b>16<sup>th</sup> of May</b>	Consultation