

MEDICAL CHEMISTRY AND BIOCHEMISTRY I

1st year - GENERAL MEDICINE - *summer semester 2023/2024*

Lectures

Prof. MUDr. Radim Černý, CSc.

Monday 8⁰⁰ – 10³⁰ Green Lecture Room

Tuesday 8⁰⁰ – 10³⁰ Green Lecture Room

Week	Date	Topic
1	19.2.	Organization of the subject Medical Chemistry and Biochemistry. Results of study.
	20.2.	Introduction. History, meaning and content of the subject.
2	26.2.	Structure of the atom. Periodic table. Water.
	27.2.	Biological membranes. Ions in the body fluids. Calcium.
3	4.3.	Inorganic compounds of C, N, S and P. Oxygen. Free radicals.
	5.3.	Trace elements (Fe, I, Cu, Se, F, Co, Zn). Introduction to toxicology.
4	11.3.	Hydrocarbons. Halogen derivatives. Oxygen containing derivatives.
	12.3.	Nitrogenous compounds. Heterocycles. Vitamins.
5	18.3.	Saccharides. Lipids.
	19.3.	Amino acids. Proteins.
6	25.3.	Nucleic acids. Alkaloids.
	26.3.	Proteins – basis for the function of living organisms.
7	1.4.	<i>Public holiday (Easter Monday).</i>
	2.4.	Proteins – primary, secondary, tertiary and quaternary structures.
8	8.4.	Enzymes – structural, functional and thermodynamic aspects.
	9.4.	Enzymes – kinetics, inhibition, regulation. Isoenzymes. Enzymes in medicine.
9	15.4.	Foundations of metabolism – metabolism of carbohydrates. Glycolysis.
	16.4.	Foundations of metabolism - conversions of pyruvate. Citrate cycle.
10	22.4.	Foundations of thermodynamics, oxidation and reduction.
	23.4.	Redox coenzymes. Respiratory chain in mitochondria.
11	29.4.	Pentose phosphate pathway. Photosynthesis.
	30.4.	UDP-derivatives of carbohydrates. Synthesis and breakdown of glycogen.
12	6.5.	Metabolism of lactose, galactose, sucrose and fructose.
	7.5.	Introduction to the metabolism of lipids. Fatty acids, β -oxidation of fatty acids.
13	13.5.	Synthesis of fatty acids. Metabolism of triacylglycerols.
	14.5.	<i>Rector's sports day.</i>
14	20.5.	Credit test – regular date.
	21.5.	Consultations.