

CHEMISTRY AND BIOCHEMISTRY

1st year - DENTISTRY - *winter semester 2023/2024*

Lectures

Doc. MUDr. Jaromír Kotyza, CSc.

Monday 11⁰⁰ – 13³⁰ Azure Lecture Room

Week	Date	Topic
1	2.10.	Introduction to medical chemistry and biochemistry. Elementary composition of living organisms, biogenic elements.
2	9.10.	Water in human body. Ions of body fluids. Transport across membranes. Biological role of calcium.
3	16.10.	Inorganic compounds of carbon, nitrogen, sulfur and phosphorus. Oxygen. Free radicals. Antioxidant protection against free radicals.
4	23.10.	Iron and its biological role. Other trace elements (I, Cu, Se, F, Co, Zn). Introduction to toxicology.
5	30.10.	Introduction to organic chemistry. Hydrocarbons. Halogen derivatives of hydrocarbons, general anesthetics. Oxygen and nitrogen derivatives of hydrocarbons.
6	6.11.	Heterocyclic compounds. Saccharides.
7	13.11.	Lipids. Steroid compounds.
8	20.11.	Amino acids, peptides and proteins.
9	27.11.	Nucleic acids. Vitamins.
10	4.12.	Enzymes – structural, functional, and thermodynamic aspects. Enzymes – kinetics, inhibition, regulation. Isoenzymes. Enzymes in clinical examination.
11	11.12.	Thermodynamics of biochemical reactions. High energy compounds. Respiratory chain.
12	18.12.	Individual components of respiratory chain. Formation of proton gradient and ATP.
13	8.1.	Degradation of major nutrients, digestion of saccharides, glycolysis. Oxidative decarboxylation of pyruvate.