

**THEMATIC PLAN OF LABORATORY LESSONS
in Medical Chemistry for the 1st year students
2025/2026 academic year**

Dentistry

№	Date	Lessons (3 hours)
1.	01.09.25– 05.09.25	The aim and purposes of medical chemistry. <i>L.w. «Obtaining skills of the work with volumetric glassware».</i>
2.	08.09.25– 12.09.25	Introduction to the coordination chemistry. <i>L.w. «Production of complex compounds».</i>
3.	15.09.25– 19.09.25	Thermochemistry. Direction of biochemical processes. The use of the apparatus of thermodynamics of chemical equilibrium in molecular and macromolecular docking. <i>L.w. «Determination of the heat effect of neutralization reaction». L.w. «Molecular docking».</i>
4.	22.09.25– 26.09.25	Elements of chemical kinetics. Catalysis and catalysts. <i>L.w. «The study of the dependence of the rate of chemical reaction on concentration of reactants».</i>
5.	29.09.25– 03.10.25	Colligative properties of solutions. Doctrine on water solutions. <i>L.w. «Hemolysis of red blood cells in hypotonic solution».</i>
6.	06.10.25– 10.10.25	The theory of solutions of weak and strong electrolytes. Protolytic theory of acids and bases. <i>L.w. «The measurement of active acidity of biological fluids».</i>
7.	13.10.25– 17.10.25	Buffer solutions and systems. <i>L.w. «Preparation of buffer solutions and investigation of the mechanism of buffering action».</i>
8.	20.10.25– 24.10.25	Titrimetric methods of analysis. <i>L.w. «Standardization of a titrant (HCl solution) with a solution of primary standard».</i>
9.	27.10.25– 31.10.25	Electrode and redox potentials. Potentiometry. Galvanic elements. <i>L.w. «Potentiometric determination of the dissociation constant for a weak electrolyte».</i>
10.	03.11.25– 07.11.25	Conductometry. <i>L.w. «Conductometric determination of the dissociation constant for a weak electrolyte».</i>
11.	10.11.25– 14.11.25	Heterogeneous equilibria in the oral cavity. <i>L.w. «Preparation of heterogeneous systems «precipitate-solution» and the shift of equilibrium in those systems».</i>
12.	17.11.25– 21.11.25	Surface phenomena. Theories of adsorption. <i>L.w. «The dependence of surface tension of a solution on the length of hydrocarbon chain of surface-active substances».</i>
13.	24.11.25– 28.11.25	Chromatography. <i>L.w. «Analysis of chromatograms and mass-spectra».</i>
14.	01.12.25– 05.12.25	Dispersed systems. Introduction to colloid chemistry. <i>L.w. «Preparation of colloid solutions with a method of condensation and investigation of their optical properties».</i>
15.	08.12.25– 12.12.25	Dispersed systems. Colloid and coarsely dispersed systems in medicine. <i>L.w. «Stability of colloid solutions».</i>
16.	15.12.25– 19.12.25	Solutions of biopolymers. Physical and chemical properties of biopolymers. <i>L.w. «Determination of the swelling degree of gelatin at different pH values».</i> <i>L.w. «Salting gelatin out».</i>
17.	22.12.25– 26.12.25	Structure of tooth enamel, processes of mineralization, demineralization, and remineralization.
18.	29.12.25– 02.01.26	Colloquium / Credit

The plan was approved by the Department of General Chemistry. Protocol No 12 of 29.08.2025.

Head of the Department of General Chemistry



M.M. Kauhanka