

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

General Medicine

| № | Date | Lessons (2 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. <i>L.w. «Determination of the heat effect of neutralization reaction».</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. <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 human body: normal and pathological. <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 | The use of the apparatus of thermodynamics of chemical equilibrium in molecular and macromolecular docking. <i>L.w. «Molecular docking».</i> |
| 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