

MINISTRY OF HEALTH OF THE REPUBLIC OF BELARUS

Educational Institution "Belarusian State Medical University"

Department of Pharmaceutical Chemistry with the course of advanced training and retraining

Discussed at the department meeting

Protocol No. 1 of

"31" August 2026

CALENDAR-THEMATIC PLAN

laboratory lessons on the academic discipline "Analytical Chemistry"

for 2nd year students of

Medical Faculty for Foreign Students

(with English language of instruction) in the specialty "Pharmacy"

for the 3th term of the 2026/2027 academic year.

№	Тема лабораторного занятия	Дата
1	Subject and tasks of analytical chemistry. Chemical methods for the identification of inorganic substances Laboratory work: Reactions for the detection of cations of I–III analytical groups.	04.09
2	Chemical methods for the identification of inorganic substances. Separation and concentration methods.. Laboratory work: "Extraction and re-extraction of bromine, extraction of perchromic acid. Reactions for the detection of cations of the IV analytical group.	11.09
3	Chemical equilibrium in analytical chemistry. Laboratory work: "Reactions for the detection of cations of V-VI analytical groups."	18.09
4	The main properties of the solvent that affect the acid-base properties of the substance. Laboratory work: "Analysis of unknown cations".	25.09
5	Calculation of pH of aqueous solutions of protoliths. Laboratory work: "Reactions for the detection of anions of I analytical groups."	02.10
6	Acid-base buffer solutions. Laboratory work: "Reactions for the detection of anions of II–III analytical groups."	09.10
7	Sampling and sample preparation in pharmaceutical analysis. Analytical chemistry and chemometrics. Using the methods of mathematical statistics for processing the results of quantitative analysis. Laboratory work "Identification of an unknown anion".	16.10
8	Summary classes on the topics "Chemical equilibrium. Protolytic equilibria. Laboratory work "Identification of an unknown inorganic substance."	23.10
9ë	General characteristics of titrimetric methods of analysis. Acid-base indicators. Laboratory work "Checking the capacity of measuring vessels. Preparation and standardization of solutions of titrants. Determination of the concentration of an alkali solution.	30.10
10	The main types of acid-base titration curves. Titration errors. Laboratory work "Analysis of a mixture of carbonate and hydrocarbonate of an alkali metal." "Determination of ammonium chloride by the back titration method".	06.11
11	Acid-base titration in non-aqueous media Application of acid-base titration in pharmaceutical analysis. Laboratory work "Titration of caffeine in a non-aqueous medium"	13.11
12	Equilibria of complex formation. Organic reagents in chemical analysis. Laboratory work "Complexometric determination of zinc chloride".	20.11

13	Complexometric titration. Laboratory work "Determination of Mg^{2+} and Ca^{2+} ions in water in their joint presence."	27.11
14	Summary classes on the topics "Acid-base and complexometric titration. Equilibria of complex formation. Laboratory work "Determination of boric acid in solution."	04.12
15	Equilibria "precipitate-solution". Laboratory work "Argentometric determination of chlorides"	11.12
16	Precipitation titration. Laboratory work "Argentometric determination of bromides and iodides".	18.12
17	Gravimetric method of analysis. Laboratory work "Determination of magnesium sulfate in crystalline hydrate"	*GIW
18	Redox equilibria.	*GIW
19	Summary classes on the topics studied. Laboratory work "Presentation of results of chemical analysis".	08.01

*GUIDED INDEPENDENT WORK OF STUDENTS

Associated Professor of the Department of
Pharmaceutical Chemistry with advanced
training and retraining



V.N.Belyatsky