Department of Chemical Theory of Drugs, Faculty of Pharmacy
Comenius University in Bratislava

SELECTED CHAPTERS IN INORGANIC CHEMISTRY

Academic year 2025/2026-winter semester

Teaching activity: 2 hours lecture/seminar per week
Lecturer: Ing. Ladislav Habala, PhD, assoc.prof. Martin Pisárčik, CSc.

LECTURE PROGRAM

1. Development of inorganic chemistry in relation to its application in pharmacy. Bioinorganic chemistry and its significance for pharmaceutical disciplines

2. Chemistry and the living organism. Biogenic elements. Metal ions in vivo. Transport, accumulation and homeostasis of metal elements.

3. Relevance and function of metals in biological systems. Trace elements in organisms – lack and excess. Supplementation of micronutrients

4. Metal toxicity. Removal of toxic metal ions from organism

5. Basics of coordination chemistry of metal complexes. Stereochemistry of coordination compounds. Formation and reactivity of metal complexes

6. Bioinorganic chemistry of oxygen. Metalloenzymes

7. Structure of matter – consolidation and expansion of basic knowledge. Structure of atomic nucleus and electron shell. Chemical bond

8. Impact of chemical bonding on the properties of molecules. Methods of structure investigation in chemistry

9. Expanded introduction into properties and reactivity of s- and p-elements. Overview of selected applications of these elements

10. Expanded introduction into properties and reactivity of d- and f-elements. Overview of selected applications of these elements

11. Nuclear chemistry and its applications in medicine and pharmacy – radiopharmaceutical chemistry. Technetium in diagnostics

12. Bioinorganic chemistry and its basic pharmaceutical applications. Employment of selected metal complexes in therapy. Platinum complexes in chemotherapy

13. Examination test

Bratislava, 10th September 2025

assoc.prof. Martin Pisárčik, CSc.
Head of Department