Course title: Basic bioinorganic chemistry

Specialty	Semester	Number of ECTS	Number of hours in the class	Form
Foreign students	**summer**	**3**	**30**	**Lab class**

Name of lecturer: Dr. Dariusz Wyrzykowski

Objective of the course (expected learning outcomes and competences to be acquired)

The course constitutes the continuation and extension of the courses of physical, bioinorganic and coordination chemistry to familiarize students with advanced research techniques of chemical compounds commonly used in a wide variety of industries, in the research and quality control laboratories.

Students will become acquainted with:

- the ways of planning experiments, interpretation of the obtained data and visualization and presentation of the results
- the most important contemporary issues related to the study of kinetics and thermodynamics of chemical compounds.

On completion of the course the student shall be able to:

- perform experiments and interpret the obtained results,
- solve problems encountered while conducting chemical experiments.

Prerequisites:

- completed courses in inorganic chemistry

Teaching methods:

- Laboratory experiments

Course contents

- variety of laboratory techniques used to study complex compounds,
- ways of studying thermodynamics and kinetics of coordination compounds,
- construction and principles of operation of modern measuring instruments (SX-R 18MV, Applied Photophysics)
- studying of reaction kinetics using stopped-flow isothermal titration calorimeter
- examination of the thermodynamic parameters of the formation of complexes
- application of variety of buffer solutions for the preparation of biological samples for testing
- computer programs for analysis and presentation of the obtained results

Recommended reading:

A. Primary literature:

A.1.Literature used during classes:

- Materials provided by teaching assistants

B. Supplementary literature:

- J. Keeler, “Kinetics of Chemical Reactions”, University of Cambridge, Departament of Chemistry, 25, IA Chemistry 2002/03.

Assessment methods:

- Class deliverables – execution of the indicated experiments and presentation of their results
- Mid-term tests

Language of instruction: English