UNIWERSYTET GDAŃSKI

Course title Chemia bionieorganiczna/Bioinorganic chemistry	**ECTS code** 13.3.0613

Name of unit administrating study
Faculty of Chemistry

Studies

Field of study	Type	Form	
Chemistry	Master	Full-time studies	

Teaching staff
Prof. dr hab. Mariusz Makowski

Forms of classes, the realization and number of hours

A. Forms of classes, in accordance with the UG Rector's regulations
lecture, laboratory classes

B. The realization of activities
In-class learning

C. Number of hours
Lecture 15 h, laboratory classes 30 h

ECTS credits
classes 45 h
Tutorial classes 5 h
Student's own work 25 h
TOTAL: 75 h - 3 ECTS

The academic cycle
2020/2021 winter semester

Type of course
obligatory

Language of instruction
Polish

Teaching methods
Lectures including multimodal presentations

Form and method of assessment and basic criteria for evaluation or examination requirements

A. Final evaluation, in accordance with the UG study regulations
Course completion (with a grade)

B. Assessment methods
test

C. The basic criteria for evaluation

positive grade from written test consisting of 12-20 open questions comprising issues listed in the program content (lecture)

Required courses and introductory requirements

A. Formal requirements
none

B. Prerequisites
basic knowledge of inorganic and coordination chemistry

Aims of education
• familiarity with the problems occurring on the border of chemical, biological and medical sciences
• introduction of both basic and specialized knowledge of biochemistry (in particular, information about the role that bio-elements such as iron, copper, zinc, cobalt, manganese, nickel and chromium, play in living organisms)

Course contents

Bioinorganic chemistry - explanation of the term, foundations; Review of the most important groups of compounds (sugars, lipids, proteins and amino acids, vitamins - coenzymes, DNA / RNA) necessary for life; Biological demand for metals and inorganic compounds; The functions of metal ions in proteolysis. Methods of studies on bioinorganic compounds. Redox reactions with electron transfer in biological systems. Oxygen transfer and transport processes in cells. Circulation of nitrogen at the molecular level. Metal physiology. Medical chemistry of inorganic compounds. Environmental chemistry of bioinorganic compounds

Bibliography of literature

A. Literature required to pass the course

A.2. Literature for individual studies:
L. Stephen, B. Jeremy – Podstawy chemii bionieorganicznej
R. M. Roat-Malone – Bioinorganic Chemistry: A Short Course
E. Ochiai – Bioinorganic Chemistry: a survey

B. Extracurricular readings

Bioinorganic Chemistry and Applications – science magazine

Knowledge

Student knows and understands the law, concepts and phenomena on the border of three areas: chemistry, biology and medicine.

Social competence

Student understands the need for further education. can formulate questions precisely to deepen understanding of a given topic or to find missing elements of reasoning; understands and appreciates the importance of intellectual honesty in own and other people's actions; act ethically; understands the need for popular presentation of selected issues in chemistry to non-specialists; can independently search for information in literature, including foreign language.