

Subject card

Subject name and code	Study of ions trace of biologically important metal ions, PG_00211846						
Field of study	Forensic Analytics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2028/2029		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Optional subject group		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		Polish		
Semester of study	6		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Bioinorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Mateusz Kowalik				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		5.0		15.0	50
Subject objectives	The aim of the course is to familiarize students with selected basic techniques for the detection and qualitative and quantitative analysis of metal ions of biological importance.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[AKRL3_U03] The graduate is able to perform analyses using instrumental methods (spectroscopy, chromatography, microbiological tests) and interpret research results.	The student is able to apply basic analytical techniques and interpret research results based on measurements.	[SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[AKRL3_U12] The graduate is able to use a foreign language at the B2 level in the field of chemical and forensic terminology.	The student uses professional English-language literature (scientific articles, textbooks).	[SU3] text preparation/written work [SU6] demonstration of practical skills
	[AKRL3_U10] The graduate is able to interpret data from different analytical techniques to reconstruct events or identify evidence material.	Based on the experiments performed, the student verifies the results.	[SU2] presentation/project/paper/report
	[AKRL3_U08] The graduate is able to prepare oral and written presentations and reports in Polish and in chosen foreign language, as well as present and evaluate different viewpoints and engage in discussion in those languages.	The student prepares a report individually or in pairs with appropriate interpretation and discussion of the results.	[SU2] presentation/project/paper/report [SU3] text preparation/written work
	[AKRL3_W02] The graduate knows and understands, at an advanced level, the analytical methods used in forensic laboratories, in particular spectroscopic, chromatographic and electroanalytical methods.	The student knows the basics and applications of analytical methods in a forensic laboratory.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[AKRL3_K06] The graduate is ready to follow occupational health and safety regulations in the laboratory and care for the safety of themselves and others.	The student is aware of the importance of observing basic safety rules in the chemical laboratory.	[SK8] observation of student's independent or team work
Subject contents	Selected topics in the chemistry of biologically important metal ions. Basic methods for their detection and qualitative and quantitative analysis. Selected topics related to the formation of complex compounds and the interactions of metal ions with ligands. Analysis of selected samples using basic laboratory techniques. Development and interpretation of research results.		
Prerequisites and co-requisites	Completed general, inorganic and analytical chemistry courses.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Entrance test and report	51.0%	100.0%
Recommended reading	Basic literature	M. Wsielewski, M. Cieślak-Golonka, J. Starosta, <i>Wstęp do chemii koordynacyjnej</i> , PWN S.J. Lippard, J.M. Berg, <i>Podstawy chemii bionieorganicznej</i> , PWN R.W. Hay, <i>Chemia bionieorganiczna</i> , PWN	
	Supplementary literature	Recommended scientific articles.	
	eResources addresses		
	Example issues/ example questions/ tasks being completed		
Work placement	Not applicable		

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