

Subject card

Subject name and code	Monographic lecture - Interactions of antimicrobials agents with metalions, PG_00119774						
Field of study	Chemistry						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Master'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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		3.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Bioinorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Mariusz Makowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
	Additional information:						
	Lecture with multimedia presentation						
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		40.0	75
Subject objectives	To make students familiar with the chemical structure, classification, methods of synthesis, analysis, known mechanisms of action, methods of searching for new antimicrobial preparations based, among others, on combinations of complex metal ions with selected groups of ligands;						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.	A student uses terminology related to the construction of antimicrobial compounds based on metal ions and ligands; can identify key functional groups of chemical and physical properties understands and can explain the meaning of complex compounds (complex: antimicrobial compound – metal ion)	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	uses terminology related to the construction of antimicrobial compounds based on metal ions and ligands; can identify key functional groups of chemical and physical properties understands and can explain the meaning of complex compounds (complex: antimicrobial compound – metal ion)	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	Student: understands the importance of antimicrobial drugs in everyday life; understands the importance of researching new antimicrobial drugs; understands the importance of searching for complex compounds (compound antimicrobial – metal ion)	[SK1] oral statement/conversation/ discussion [SK4] test/exam - oral or written
	[CHEMMU2_W01] Uses knowledge of spectroscopic methods of chemical compound analysis.	A student uses terminology related to the construction of antimicrobial compounds based on metal ions and ligands; can identify key functional groups of chemical and physical properties understands and can explain the meaning of complex compounds (complex: antimicrobial compound – metal ion)	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
Subject contents	characteristics of antimicrobial preparations based on metal ions and organic ligands; mechanism of action of selected antimicrobial preparations; drug resistance; physicochemistry of complexes; presentation of examples of anticancer drugs based on metal ion complexes and the latest scientific trends regarding antimicrobial preparations		
Prerequisites and co-requisites	Completed course "General Chemistry", "Inorganic Chemistry", "Organic Chemistry".		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written examination with 8-10 open-ended questions	50.0%	100.0%
Recommended reading	Basic literature	A. Zejca, M. Gorczyca Chemia leków, wyd. PZWL, warszawa 2004 Z. Markiewicz, Z. A. Kwiatkowski Bakterie, antybiotyki, lekooporność, wyd. PWN, Warszawa 2012 R.B. Silverman, Chemia organiczna w projektowaniu lekow, wyd. WNT, Warszawa, 2004 S.J. Lippard, J.M. Berg Podstawy chemii bionieorganicznej	
	Supplementary literature	Positions indicated by the lecturer	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Characterize the cis-platinum.		

Work placement	Not applicable
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