

Subject card

Subject name and code	Organic-inorganic hybrid networks as multifunctional materials, PG_00179535						
Field of study	Chemistry						
Date of commencement of studies	October 2026	Academic year of realisation of subject			2026/2027		
Education level	Master's studies	Subject group			Optional subject group		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	academic	Assessment form			credit		
Conducting unit	Laboratory of Intermolecular Interactions -> 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	30.0	0.0	0.0	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		20.0	55
Subject objectives	Familiarization with currently intensively obtained inorganic and metal-organic materials and their use in industry, technology, medicine and environmental protection						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[CHEMMU2_U04] Applies acquired knowledge of chemistry and related scientific disciplines.		Characterizes the most important types of inorganic and metal-organic materials and is able to indicate the correlation between their properties and possible applications.		[SU4] test/exam - oral or written		
	[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.		He is aware of following the rapid development of science and technology.		[SK1] oral statement/conversation/discussion		
	[CHEMMU2_W04] Applies the acquired knowledge to an in-depth description of the properties of chemical connections, methods of their synthesis and analysis.		Knows the main types of multicore complexes, general principles of their planning, methods of synthesis, and methods of testing materials obtained on their basis.		[SW4] test/exam - oral or written		
	[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.		Demonstrates in-depth knowledge of the current directions of development of chemistry as a science and the latest discoveries in this field.		[SW1] oral statement/conversation/discussion		
Subject contents	Preliminary characterization of multifunctional molecular materials. Methods of preparation and strategies of creating coordination networks. Correlation between the structure, properties of multinuclear coordination compounds and their use in industry, technology, medicine and environmental protection. Modern research methods used in the characterization of inorganic and metal-organic materials.						
Prerequisites and co-requisites	inorganic chemistry						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		51.0%	100.0%
Recommended reading	Basic literature	Z. Stasicka, G. Stochel, Podstawy i perspektywy chemii koordynacyjnej, Wydawnictwo UJ, Tom 1 2014, Tom 2 2017 M. Cieślak-Golonka, J. Starosta, A. Trzeciak, Chemia koordynacyjna w zastosowaniach, PWN, Warszawa 2017	
	Supplementary literature	L.R. MacGillivray, Metal-organic frameworks. Design and Application, Wiley, 2010	
	eResources addresses	Basic https://www.scopus.com/search/form.uri?display=basic&zone=header&origin=searchbasic#basic - SCOPUS	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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