University of Gdańsk

Subject card

Subject name and code	MSc laboratory course, PG_00117797						
Field of study	Chemistry						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2025/2026			
Education level	postgraduate 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	English			
Semester of study	4		ECTS credits	10.0			
Learning profile	academic		Assessment form				
Conducting unit	Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Joanna Makowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	190.0	0.0	0.0	190
	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	190		30.0	30.0	250	
Subject objectives	Planning and performance of experimental research project by each student working under the control / guidance of supervisor. Presentation of obtained research results in the form of written master thesis						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEMMU2_W14] Explains the basic concepts and principles in the field of industrial property and copyright protection and recalls knowledge about the management of intellectual property resources; is able to use patent information.	-Student is able to explain the basic concepts and principles related to the protection of intellectual property. - Student knows the principles of copyright law, patent law, trademark law, industrial design law, and trade secret law. - Student demonstrates basic knowledge of legal and ethical conditions related to scientific activity, including the protection of intellectual property and copyright; - Student presents extended knowledge of current directions of development and the latest scientific achievements in the field of the subject of his/her master's thesis;	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[CHEMMU2_U07] Defines and implements the directions of own further education.	-Student verifies the level of his knowledge and skills; understands the need for continuous professional education and personal development, demonstrates creativity in working independently and in a team. - Student knows his or her strengths. Knows how to conduct professional exploration in the future. Is able to regularly assess his progress and adapt his actions to new challenges.	[SU5] implementation of a problem task
[CHEMMU2_W10] Uses knowledge of the principles of operation of the basic scientific and research apparatus used in chemistry.	Student: names and describes methods of analysis and/or methods of computer theoretical calculations used during realization of master project distinguishes and characterizes individual experimental/ IT techniques used during realization of research project identifies scientific and research apparatuses used during realization of research project and explains the principles of their operations.	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
[CHEMMU2_U10] Reads with understanding scientific and popular science chemical texts in English.	Student: performs scheduled experiments, makes observations analyzes the obtained results and compares them with available literature data draws conclusions from the conducted tests and proves their correctness in based on available literature data presents the same content in a different language convention systematically collects and prepares documentation of her/his research work.	[SU5] implementation of a problem task
[CHEMMU2_W02] Has extended and in-depth knowledge in the field of basic chemistry.	Student is able to discuss specialized topics both in Polish and English, correctly arguing his or her conclusions in the field of chemistry at an advanced level in the research topic in which he or she is involved.	[SW2] presentation/project/paper/ report

	Course outcome	Subject outcome	Method of verification
	[CHEMMU2_W09] Classifies specialist IT tools used in statistical evaluation of experiment results.	Student: names and describes methods of analysis and/or methods of computer theoretical calculations used during realization of master project distinguishes and characterizes individual experimental/ IT techniques used during realization of research project identifies scientific and research apparatuses used during realization of research project and explains the principles of their operations.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
	[CHEMMU2_K05] Understands the need for independent search of information in scientific literature and popular science magazines.	Student: works independently correctly defines priorities necessary for realization of her/his own aims cares for safety during own-self realization of chemical experiments takes into account the made arrangements for realization of experiments.	[SK3] text preparation/written work [SK5] implementation of a problem task
	[CHEMMU2_W13] Demonstrates knowledge of legal and ethical conditions related to scientific and didactic work.	- Student knows the assumptions of copyright and patent law - Student is aware of the consequences of disregarding intellectual property and the abuse of artificial intelligence tools in scientific, research and teaching work. - Student knows the basic concepts and principles related to the protection of intellectual property.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
	[CHEMMU2_W12] Knows the principles of occupational health and safety to the extent that allows independent work on a research and/or measurement position.	Student understands the need to exercise due caution when using laboratory equipment and working with chemical reagents; - Student knows the applicable regulations and guidelines regarding occupational health and safety in his field. He is aware of how to prevent accidents and knows the appropriate equipment for his workstation	[SW2] presentation/project/paper/ report [SW5] implementation of a problem task
Subject contents	The program content is varied and depends on the scope of the topic of the master thesis		
Prerequisites and co-requisites	Knowledge of general, inorganic, and organic chemistry, biochemistry, and mathematics at the first-cycle education. Knowledge of basic issues in the field of quantum chemistry, chemometrics and/or related scientific fields. Specific knowledge and skills in programming in Python and/or R.		

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Presentation of obtained research results in the form of written master thesis	100.0%	100.0%

Recommended reading	Basic literature	Literature required to pass the course A.1. Literature used during classes: Specialist literature in the scope of realized master thesis. The scope of literature is corrected and still adopted to conducted master research topics A.2. Literature for individual studies: Specialist literature in the scope of realized master thesis. The scope of literature is corrected and still adopted to conducted master research topics
	Supplementary literature	Extracurricular readings Specialist literature in the scope of realized master thesis. The scope of literature is corrected and still adopted to conducted master research topics
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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