

Subject card

Subject name and code	B.Sc. laboratory class, PG_00081839						
Field of study	Chemistry						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
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		4.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Chemistry -> Rector						
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	60.0	0.0	0.0	60
	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	60		10.0		30.0	100
Subject objectives	To gain competences of correct performing of research in the field of selected specialization and / or topic of the diploma Acquainting with the basic aspects of the construction and operating principle of the used research equipment To gain knowledge in the field of the basic computational methods in the field of selected specialization and / or topic of the diploma Acquiring the ability of critical interpretation of the obtained results. Developing the skills of correct preparation of the diploma project.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_K09] Is familiar with the general principles of creating and operating forms of individual entrepreneurship.	Student correctly identifies and resolves dilemmas related to this profession shows creativity in independent acting, can work in a team performing different roles taking into account the priorities for achieving the intended aims Student shows responsibility for the safety of own and other work and the workplace, Student complies with the rules conducted in emergencies	[SK1] oral statement/conversation/discussion
	[CHEML3_W13] Enumerates and describes the basic legal and ethical aspects related to scientific, research and didactic work.	Knows and presents issues related to the selected specialty / subject of the diploma thesis. Knows, lists and describes the basic legal and ethical aspects related to the implementation of the diploma thesis. Knows and explains the basic concepts and principles in the field of intellectual and industrial property protection, copyright and patent law required to complete the diploma thesis.	[SW4] test/exam - oral or written
	[CHEML3_W14] Recalls and explains the basic concepts and principles in the field of intellectual and industrial property protection, copyright and patent law.	Student knows the basic concepts and principles related to the protection of intellectual property. Knows the principles of copyright law, patent law, trademark law, industrial design law, and trade secret law	[SW1] oral statement/conversation/discussion
	[CHEML3_U12] Reads with understanding scientific and popular science chemical texts in English.	Student develops the ability to recognize and understand specialized terms in chemistry, such as names of chemical compounds, reactions, functional groups, etc. By reading scientific texts, student learns to analyze and synthesize information, extract key concepts and understand complex chemical issues. Student develops the ability to think critically and assess the quality of information regarding the context of research and evaluation of results.	[SU1] oral statement/conversation/discussion
	[CHEML3_U06] Uses basic application software packages to solve problems from the field of science.	The student is able to choose a computing package depending on his needs and preferences.	[SU5] implementation of a problem task
	[CHEML3_U10] Prepares papers on various fields of chemistry in Polish and English, using acquired knowledge and skills as well as various sources of scientific information.	Student is able to prepare a written work (paper, report, description) both in Polish and English, correctly arguing his or her conclusions in the field of chemistry. At work, he knows how to correctly interpret and analyze information related to basic chemical laws. - By reading scientific texts, student learns to analyze and synthesize information, extract key concepts and understand complex issues	[SU3] text preparation/written work

	Course outcome	Subject outcome	Method of verification
	[CHEML3_U11] Prepares and presents oral presentations in various fields of chemistry in Polish and English, using acquired knowledge and skills as well as basic sources of scientific information.	• The student is able to properly perform research in the selected specialty and/or the subject of the diploma project. • The student is able to operate the research equipment used for the project. • Student is able to use basic computational methods in the field of the selected specialty and/or subject of the diploma project. • The student has the ability to critically interpret the results obtained. • The student is able to properly prepare and perform a diploma project.	[SU2] presentation/project/paper/report
	[CHEML3_K04] Respects and appreciates the importance of intellectual property in her/his actions and in the actions of others; acts ethically.	Student is critical in expressing opinions and is open to the opinions of co-discussants. The student independently uses literature databases and critically selects source texts. The student is aware of the consequences of not respecting intellectual property.	[SK2] presentation/project/paper/report
Subject contents	The program contents are varied and adapted to the scope of the chosen specialization and/ or and / or topic of the diploma		
Prerequisites and co-requisites	Knowledge of basic issues in the field of chemistry and / or related scientific fields		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Preparation and presentation of several multimedia presentations on research topics	75.0%	100.0%
Recommended reading	Basic literature	A. Literature required to pass the course : A.1. Literature used during classes: <	

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