

Subject card

Subject name and code	Inerdyscyplinary laboratory projects in modern chemistry, PG_00211737						
Field of study	Chemical Business						
Date of commencement of studies	February 2027		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Obligatory subject group in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		12.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Joanna Makowska, prof. UG				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	180.0	0.0	0.0	180
	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	180		24.0		96.0	300
Subject objectives	The main objective of the course is to provide students with practical preparation for project-based and teamwork activities through their active involvement in addressing a real research problem. The course aims to familiarize students with research practice and methodology – from formulating a research problem and planning the successive stages of a project, through selecting appropriate methods and tools, to analyzing the results obtained, drawing conclusions, and presenting the outcomes of the team's work. Other objectives include: - familiarizing students with the research facilities and instrumentation available in the individual departments of the Faculty of Chemistry; - developing skills in the use of specialized equipment and/or software; - introducing students to potential Master's thesis topics that can be pursued within a given department. The course is organized in the form of three project consortia, each comprising four collaborating departments. Within each consortium, students carry out a joint interdisciplinary research project, drawing on the knowledge, expertise, and research infrastructure of the participating departments. At the same time, students rotate through all laboratories within their consortium, becoming familiar with the research areas pursued by the individual laboratories, the research methods employed, the available equipment, and the possibilities for using specialized instrumentation in scientific research projects.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BCHMU2_K01] Is willing to develop and disseminate appropriate best practices at and outside the workplace.	The student: works independently and/or as part of a team; appropriately identifies and prioritizes tasks necessary for the successful completion of research activities; is able to critically assess their own knowledge and skills and takes appropriate steps to further develop their competencies and qualifications.	[SK1] oral statement/conversation/discussion [SK6] demonstration of practical skills
	[BCHMU2_W04] Knows and understands specialist IT tools used in chemical diagnostics.	The student knows and understands the potential applications of specialized computational tools used for the analysis, processing, and interpretation of data obtained in chemical research.	[SW3] text preparation/written work [SW5] implementation of a problem task
	[BCHMU2_K03] Is willing to critically assess the level of her/his knowledge in the light of the achievements of the scientific discipline studied.	The student is prepared to critically assess their own knowledge and skills in relation to problems encountered during the implementation of a research project and recognizes the need for their continuous development and improvement.	[SK1] oral statement/conversation/discussion [SK2] presentation/project/paper/report [SK3] text preparation/written work
	[BCHMU2_W01] Knows and understands complex physicochemical processes and is able to analyse their course in connection with other fields of science.	The student is able to recognize and understand specialized terminology in chemistry related to the research areas of a given department and can correctly analyze the physicochemical processes observed during the research. The student develops the ability to perform a broader analysis of chemical data and to interpret them in the context of other scientific disciplines.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report
	[BCHMU2_U06] Is able to critically analyse experimental data by numerical and statistical methods using IT techniques and tools.	The student is able to process and critically interpret experimental data obtained within the research project, using appropriate numerical and statistical methods as well as specialized computational tools.	[SU3] text preparation/written work [SU5] implementation of a problem task [SU6] demonstration of practical skills
	[BCHMU2_U04] Is able to independently plan and perform specific research tasks in the field or in the laboratory, interpret their results working individually or in a team, assuming various roles and functions including managerial.	The student: performs planned experiments using specialized research equipment and/or software; makes observations and records experimental findings; develops the ability to critically interpret and evaluate the obtained results; develops the ability to engage in constructive and creative discussion of research problems and the results of the analyses performed.	[SU5] implementation of a problem task
	[BCHMU2_U01] Is able to, on the basis of her/his knowledge, propose a solution to problems in chemistry, taking into account the economic aspect by using advanced measurement techniques.	The student is able to plan an approach to solving a research problem within the framework of a research project by selecting appropriate advanced research methods and techniques, taking into account their suitability, availability, and economic considerations.	[SU5] implementation of a problem task
Subject contents	The course content is diverse and tailored to the scope of research conducted within each department.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Presentation of the results of three completed research projects.	100.0%	100.0%

Recommended reading	Basic literature	Books and scientific articles related to the research areas of the individual departments.
	Supplementary literature	Books and scientific articles related to the research areas of the individual departments.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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