


KAPITAŁ LUDZKI
 NARODOWA STRATEGIA SPÓJNOŚCI

 Projekt współfinansowany przez
 Unię Europejską w ramach
 Europejskiego Funduszu
 Społecznego

UNIA EUROPEJSKA
 EUROPEJSKI
 FUNDUSZ SPOŁECZNY


Course title		ECTS code	
MSc laboratory course		13.3.1307	
Name of unit administrating study			
null			
Studies			
faculty	field of study	type	drugiego stopnia
Wydział Chemii	Chemia	form	stacjonarne
		specjalty	Digital Chemistry
		specialization	wszystkie
Teaching staff			
dr hab. Jolanta Kumirska, profesor uczelni			
Forms of classes, the realization and number of hours		ECTS credits	
Forms of classes		20	
Laboratory classes		Classes 370 h	
The realization of activities		180 h in 3 semester	
classroom instruction		190 h in 4 semester	
Number of hours		Tutorial classes 60 h	
Laboratory classes: 370 hours		20 h in 3 semester	
		20 h in 4 semester	
		Student's own work 260 h	
		45 h in 3 semester	
		45 h in 4 semester	
		TOTAL: 500 h - 20 ECTS	
		245 h and 10 ECTS in 3 semester	
		255 h and 10 ECTS in 4 semester	
The academic cycle			
2024/2025 winter semester			
Type of course		Language of instruction	
obligatory		English	
Teaching methods		Form and method of assessment and basic criteria for evaluation or examination requirements	
Practical laboratory work – computational chemistry experiments and case studies, analysis of obtained results and discussion.		Final evaluation	
		Graded credit	
		Assessment methods	
		Realization of master project and presentation of the obtained results	
		The basic criteria for evaluation	
		an assessment of the quality of performed master's researches, including substantive preparation, independence in their realization, correctness of conducted researches (if performed), correctness of interpretation of the obtained results	
Method of verifying required learning outcomes			
Required courses and introductory requirements			
A. Formal requirements			
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.			
B. Prerequisites			
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.	
Aims of education	
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	
Course contents	
The program content is varied and depends on the scope of the topic of the master thesis	
Bibliography of 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 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	
The learning outcomes (for the field of study and specialization)	Knowledge
	Skills
	Social competence
K_W02: has in-depth knowledge in the field of basic chemistry K_W09: classifies specialist IT tools used in statistical evaluation of experiment results K_W10: uses knowledge of the principles of operation of the scientific and research apparatus used in chemistry K_W12: knows the principles of occupational health and safety to the extent that allows independent work on a research and/or measurement position K_W13: demonstrates knowledge of legal and ethical conditions related to scientific and didactic work K_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 K_U07: defines and implements the directions of own further education K_U10: reads with understanding scientific and popular science chemical texts in English K_K05: understands the need for independent search of information in scientific literature and popular science magazines	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.
	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.
	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.
Contact	
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