University of Gdańsk

Subject card

Subject name and code	Laboratory course, PG_00144470		
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	Polish
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	dr Daria Grzywacz dr Dorota Zarzeczańska dr hab. Alicja Boryło dr Magdalena Zdrowowicz-Żamojć dr Anna Wcisło dr Marta Orlikowska dr Marta Spodzieja dr Natalia Ptaszyńska dr hab. Barbara Dmochowska prof. dr hab. Mariusz Makowski dr Sandra Brzeska dr hab. Łukasz Haliński dr Grzegorz Olszewski dr hab. Agnieszka Gajewicz-Skrętna prof. dr hab. Piotr Skurski dr hab. Agnieszka Żylicz-Stachula dr Agata Gitlin-Domagalska dr inż. Anna Gołąbiewska dr Maria Dzierżyńska dr inż. Beata Bajorowicz dr Julia Witkowska dr hab. Aneta Szymańska dr hab. Anna Łęgowska dr hab. Artur Sikorski dr hab. Beata Grobelna dr hab. Dagmara Strumińska-Parulska dr hab. Dariusz Wyrzykowski dr hab. Emilia Sikorska dr hab. Elżbieta Jankowska dr hab. Joanna Makowska dr hab. inż. Anna Białk-Bielińska dr hab. Karol Krzymiński dr hab. Jarosław Ruczyński dr hab. Magdalena Wysocka dr hab. Marek Gołębiowski dr inż. Krzysztof Żamojć dr hab. Adam Sieradzan

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_U01] Plans and implements chemical experiments of medium complexity.	-Student is able to define a clear goal or task that you want to achieve. Identifies the stages, operations and equipment involved in the project. -Student uses his knowledge in practice by performing/planning chemical experiments with a greater degree of difficulty.	[SU5] implementation of a problem task
[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: • names and describes methods of synthesis and 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 [SW2] presentation/project/paper/ report
[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.	[SU1] oral statement/conversation/ discussion [SU5] implementation of a problem task
[CHEMMU2_K06] Undertakes research tasks consciously and responsibly, understanding the social aspects of the practical application of the acquired knowledge and skills and the responsibility related to it.	-Student understands that his actions have an impact on society and the world around him. Considers the social consequences of its research activities and makes responsible decisions. -Student understands the ethical aspects of conducting research. Adheres to the principles of honesty, confidentiality and respect in his research work. -Student not only acquires theoretical knowledge, but also understands how to apply it in practice. -Student considers how his or her research can contribute to solving real social problems. - Student understands that the results of his research may have an impact on other people. He cares about the quality of his research and presents the results responsibly.	[SK1] oral statement/conversation/ discussion [SK2] presentation/project/paper/ report [SK5] implementation of a problem task
[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

Course outcome	Subject outcome	Method of verification
[CHEMMU2_K04] Correctly identifies and resolves dilemmas related to the profession of a chemist.	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	[SK1] oral statement/conversation/ discussion [SK5] implementation of a problem task
[CHEMMU2_U03] Finds necessary information in specialist literature, databases and other sources, lists basic scientific journals in chemistry.	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	[SU2] presentation/project/paper/ report [SU5] implementation of a problem task
[CHEMMU2_K05] Understands the need for independent search of information in scientific literature and popular science magazines.	-Student independently uses literature databases and critically selects source texts. - Student is aware of the consequences of disregarding intellectual property and the abuse of artificial intelligence tools in scientific and research work - After reading the literature on the topic of research he or she is carrying out, the student knows how to act independently and correctly determines the priorities necessary to achieve his or her own goals.	[SK2] presentation/project/paper/ report [SK5] 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

Organic chemistry, Biochemistry, Physical chemistry, Spectrochemistry, Instrumental analysis, Intellectual property protection, Advanced chemistry laboratory.

Knowledge of organic and physical chemistry and biochemistry at the first-cycle education, knowledge of the basic principles of occupational health and safety in a chemical laboratory, knowledge of the construction and operating principle of basic chemical apparatus used in the laboratory of organic synthesis and physicochemistry, knowledge of basic concepts and principles of property protection industrial and copyright law, the ability to synthesize simple organic compounds based on procedures written in Polish and English languages.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Presentation of the obtained research results in the form of a written master's thesis	100.0%	100.0%

Recommended reading

Basic literature

A. 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	B. 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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