

Subject card

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| Subject name and code | Graduate laboratory course, PG_00117688 | | |
| Field of study | Chemistry | | |
| Date of commencement of studies | October 2024 | Academic year of realisation of subject | 2024/2025 |
| 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 | 1 | Language of instruction | Polish |
| Semester of study | 2 | ECTS credits | 12.0 |
| Learning profile | academic | Assessment form | |
| Conducting unit | Faculty of Chemistry | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | dr hab. Joanna Makowska | |

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|---|---|--|---|------------|------------|---------|-----|
| | Teachers | | dr Lidia Chomicz-Mańska dr Katarzyna Kuncewicz dr hab. Joanna Makowska dr Ewa Wieczerzak dr hab. inż. Anna Białk-Bielińska dr inż. Irena Bylińska dr inż. Emilia Iłowska dr Joanna Jeżewska-Frąckowiak dr Julia Witkowska dr Joanna Żebrowska dr inż. Krzysztof Żamojć dr Aleksandra Tesmar dr hab. Aneta Szymańska prof. dr hab. Adam Lesner prof. dr hab. Piotr Skowron dr hab. Magdalena Wysocka dr Sandra Brzeska prof. dr hab. Janusz Rak dr hab. Agnieszka Żylicz-Stachula dr hab. Agnieszka Chylewska dr hab. Artur Sikorski dr hab. Andrzej Nowacki dr hab. Dagmara Strumińska-Parulska dr hab. Beata Grobelna dr hab. Elżbieta Jankowska dr Mateusz Kowalik dr hab. Dariusz Wyrzykowski dr Dorota Zarzeczańska dr Daria Krefft | | | | |
| 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 | 30.0 | | 90.0 | 300 | |
| Subject objectives | Substantive and / or practical preparation for realization of experimental part in the field of master thesis | | | | | | |

| Learning outcomes | Course outcome | Subject outcome | Method of verification |
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| | [CHEMMU2_U10] Reads with understanding scientific and popular science chemical texts in English. | Student: has the ability to conduct experiments related to the master thesis; uses simple and advanced methods, techniques and tools to achieve goals intended in the mater thesis is fluent in finding information in specialized literature (Polish and English) demonstrates the ability to write a master's thesis in Polish and a short scientific report in a foreign language based on her/his own research discusses about issues related to the master thesis in understandable language; is able to define her/his interests and develop them within the chosen specialization and/or within the topic of the master thesis; carries out the process of self-education and planning future career | [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: verifies the level of her/his knowledge and skills; understands the need for continuous vocational training and personal development demonstrates creativity in independent and team work; is characterized by perseverance in taking on personal and professional challenges can work in a group, taking in it various roles is responsible for the safety of own and other work; knows how to deal with emergencies, is careful working with chemicals, is careful working with measuring instruments; understands the need to comply with the principles of professional ethics | [SK2] presentation/project/paper/report [SK3] text preparation/written work [SK5] implementation of a problem task |
| | [CHEMMU2_W03] Demonstrates extended knowledge in the field of modern measuring techniques used in chemical analysis. | Student: recognizes and characterizes methods, techniques and research tools used in chemistry; chooses the correct research methods to complete the master research thesis characterizes development directions and knows the latest discoveries in the field of research carried out as part of the master thesis knows and applies the principles of health and safety during realization of experimental work on a test or measuring stand in laboratory or in the field (outside) | [SW5] implementation of a problem task |
| | [CHEMMU2_U02] Critically assesses the results of conducted, performed observations and theoretical calculations and discusses errors. | - Student is critical in expressing opinions on the results obtained during research and is open to the opinions of co-discussants. - The student critically selects source texts to conduct a reliable analysis of his or her own data. | [SU1] oral statement/conversation/discussion [SU2] presentation/project/paper/report |
| | [CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied. | - 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. - Student knows how to correctly interpret and analyze related information related to basic chemical laws and issues. | [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report [SW3] text preparation/written work |

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| | Course outcome | Subject outcome | Method of verification |
| | [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 - Student knows how to correctly interpret and analyze related information related to basic chemical laws and issues. | [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 | [SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report |
| | [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. | [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 | First cycle studies in chemistry, environmental protection, chemical engineering and related fields. 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 |
| | Implementation of a practical research project in practice; results report | 100.0% | 100.0% |
| Recommended reading | Basic literature | A. Literature required to pass the course A.1. Literature used during classes: Books and scientific articles related to the topic of the master thesis A.2. Literature for individual studies: Books and scientific articles related to the topic of the master thesis | |
| | Supplementary literature | B. Extracurricular readings Books and scientific articles related to the topic of the master thesis | |
| | eResources addresses | Adresy na platformie eNauzanie: | |
| Example issues/ example questions/ tasks being completed | | | |
| Work placement | Not applicable | | |

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