

**Subject card**

<b>Subject name and code</b>	MSc workshop, PG_00144456						
<b>Field of study</b>	Environmental Protection						
<b>Date of commencement of studies</b>	October 2024	<b>Academic year of realisation of subject</b>			2025/2026		
<b>Education level</b>	postgraduate studies	<b>Subject group</b>			Obligatory subject group in the field of study Optional subject group		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	3	<b>ECTS credits</b>			14.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>					
<b>Conducting unit</b>	Faculty of Chemistry						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Joanna Makowska				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	0.0	0.0	180.0	0.0	0.0	180
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	180		5.0		25.0	210
<b>Subject objectives</b>	Substantive preparation and/or practical implementation of the experimental part in the field of the subject of the master's thesis						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	<p>[OŚMU2_W09] Applies safety and hygiene principles when working independently on a test or measurement stand in a laboratory or in the field.</p>	<p>Student:</p> <p>knows complex phenomena and processes occurring in nature, including those related to the spread of anthropogenic pollution;</p> <p>explains and explains the phenomena observed during the research carried out as part of the master's thesis recognizes and characterizes methods, techniques and research tools used in environmental protection;</p> <p>selects the appropriate research methods to complete the master's thesis characterizes the directions of development and knows the latest discoveries in the field of research carried out as part of the master's thesis</p> <p>knows and applies the rules of safety and hygiene when performing work on a research or measurement stand in a laboratory or in the field.</p>	<p>[SW5] implementation of a problem task</p>
	<p>[OŚMU2_U06] Defines her/his interests and develops them within the chosen specialisation and themes of her/his master's thesis while implementing the process of self-education and planning of own future career.</p>	<p>Students:</p> <p>demonstrates the ability to conduct experiments related to the master's thesis;</p> <p>uses simple and advanced methods, techniques and tools to achieve the intended goals fluently searches for information in the literature on the subject (Polish and English)</p> <p>demonstrates the ability to write a master's thesis in Polish and a short scientific report in a foreign language based on their own research</p> <p>talks about issues related to the master's thesis in an understandable language;</p> <p>is able to define their interests and develop them within the selected specialization and the subject of the master's thesis; carries out the process of self-education and future career planning</p>	<p>[SU5] implementation of a problem task [SU6] demonstration of practical skills</p>

	Course outcome	Subject outcome	Method of verification
	<p>[OŚMU2_K05] Critically assesses her/his own knowledge and the knowledge of the teams in which s/he works, can critically assess the content received.</p>	<p>Student:</p> <ul style="list-style-type: none"> <li>verifies the level of his knowledge and skills;</li> <li>understands the need for continuous professional training and taking care of personal development demonstrates creativity in independent and team work;</li> <li>is characterized by perseverance in taking up personal and professional challenges able to work in a group, assuming different roles in it is responsible for the safety of his own and others' work;</li> <li>knows how to act in emergency situations, is careful in handling chemical substances, is prudent in handling measuring equipment;</li> <li>understands the need to comply with the rules of professional ethics</li> </ul>	<p>[SK1] oral statement/conversation/discussion</p>
	<p>[OŚMU2_K03] Undertakes professional and personal challenges, shows activity, undertakes efforts and is characterized by perseverance in undertaking individual and team actions in the field of environmental protection.</p>	<ul style="list-style-type: none"> <li>- Student is able to define specific goals and strives to achieve them, especially by engaging in activities related to environmental protection.</li> <li>- Student knows how to actively look for opportunities to act and take them on your own initiative, engaging in team projects.</li> <li>- Student learns from mistakes: he is able to analyze actions and draw conclusions.</li> </ul>	<p>[SK5] implementation of a problem task</p>
	<p>[OŚMU2_U05] Searches, selects and analyses the literature achievements of environmental sciences, including scientific journals and databases, reading and understanding scientific texts in her/his native language and in English.</p>	<ul style="list-style-type: none"> <li>- Student uses research tools, collects and processes data, interprets research results and prepares presentations on environmental protection.</li> <li>- Student communicates freely in a foreign language, conducts debates and presents issues related to environmental sciences.</li> <li>- Student is able to evaluate the received content, use reliable sources of scientific information and draw correct conclusions.</li> </ul>	<p>[SU2] presentation/project/paper/report [SU5] implementation of a problem task</p>
	<p>[OŚMU2_U03] Plans and performs research tasks in the field or laboratory and interprets research results on environmental issues (working individually or in a team assuming various roles, including managerial functions).</p>	<ul style="list-style-type: none"> <li>- Student is able to plan and perform field research, collecting data on site, and is able to use laboratory tools and techniques to analyze samples.</li> <li>- Student is able to interpret research results, analyze the collected data, draw conclusions and formulate recommendations.</li> <li>- Student knows how to recognize environmental threats, such as air, water and soil pollution, or ecosystem degradation.</li> <li>- Student is able to perform managerial functions in a research team, but is also able to cooperate with other scientists, specialists and experts.</li> </ul>	<p>[SU5] implementation of a problem task</p>

	<table border="1"> <thead> <tr> <th>Course outcome</th> <th>Subject outcome</th> <th>Method of verification</th> </tr> </thead> <tbody> <tr> <td>[OŚMU2_U08] Prepares a master's thesis using the appropriate methodology to prepare and write a scientific thesis containing a description and justification of the purpose of the thesis based on the current state of knowledge in a given topic as well as research methodology, results and their discussion.</td> <td>- Student is able to prepare a written work (paper, report, description) 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, the student learns to analyze and synthesize information, extract key concepts and understand complex issues.</td> <td>[SU3] text preparation/written work</td> </tr> <tr> <td>[OŚMU2_K06] Recognises the importance of knowledge in solving encountered cognitive and practical problems and consults experts in the event of difficulties in solving a problem on her/his own.</td> <td>- Student is aware of the need to critically analyze his or her own work - Student is aware of the consequences of disregarding intellectual property and the abuse of artificial intelligence tools in scientific and research work - Student remains open to the opinions of co-discussants</td> <td>[SK1] oral statement/conversation/discussion</td> </tr> </tbody> </table>	Course outcome	Subject outcome	Method of verification	[OŚMU2_U08] Prepares a master's thesis using the appropriate methodology to prepare and write a scientific thesis containing a description and justification of the purpose of the thesis based on the current state of knowledge in a given topic as well as research methodology, results and their discussion.	- Student is able to prepare a written work (paper, report, description) 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, the student learns to analyze and synthesize information, extract key concepts and understand complex issues.	[SU3] text preparation/written work	[OŚMU2_K06] Recognises the importance of knowledge in solving encountered cognitive and practical problems and consults experts in the event of difficulties in solving a problem on her/his own.	- Student is aware of the need to critically analyze his or her own work - Student is aware of the consequences of disregarding intellectual property and the abuse of artificial intelligence tools in scientific and research work - Student remains open to the opinions of co-discussants	[SK1] oral statement/conversation/discussion
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Subject contents	The program content is varied and adapted to the scope of the master's thesis.									
Prerequisites and co-requisites	First-cycle studies in chemistry, environmental protection, chemical engineering and related fields  First-cycle studies in chemistry, environmental protection, chemical engineering and related fields									
Assessment methods and criteria	<table border="1"> <thead> <tr> <th>Subject passing criteria</th> <th>Passing threshold</th> <th>Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td>Preparation of several presentations on research topics and research results (research report)</td> <td>100.0%</td> <td>100.0%</td> </tr> </tbody> </table>	Subject passing criteria	Passing threshold	Percentage of the final grade	Preparation of several presentations on research topics and research results (research report)	100.0%	100.0%			
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Recommended reading	<p>Basic literature</p> <p>A. Literature required for the final completion of the course (passing the exam):</p> <p>A.1. used during classes</p> <p>Specialist literature in the field of the master's thesis. The scope of the literature is corrected and agreed on an ongoing basis, depending on the research topics being pursued</p> <p>A.2. studied by the student alone</p> <p>Specialist literature in the field of the master's thesis. The scope of the literature is corrected and agreed on an ongoing basis, depending on the research topics being pursued</p>									
	<p>Supplementary literature</p> <p>B. Supplementary Literature</p> <p>Specialist literature in the field of the master's thesis. The scope of the literature is corrected and agreed on an ongoing basis, depending on the research topics being pursued</p>									
	eResources addresses	Adresy na platformie eNauczanie:								
Example issues/ example questions/ tasks being completed										
Work placement	Not applicable									

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