

**Subject card**

<b>Subject name and code</b>	Introduction to the Principles of Drug Design, PG_00117707						
<b>Field of study</b>	Chemistry						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2026/2027		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Optional subject group		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	1	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	2	<b>ECTS credits</b>			2.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Faculty of Chemistry -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr inż. Karolina Jagiełło				
	<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	30.0	0.0	0.0	30
	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>	30		5.0		15.0	50
<b>Subject objectives</b>	To familiarize students with issues related to the mechanisms of action of chemotherapy drugs To familiarize students with the current state of knowledge about strategies and methods for designing new chemotherapeutics						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	Upon completion of the course, each student: recognises the benefits of using computer methods in the context of social (improving the quality of life of society), ethical (reducing the number of animal testing) and economics (reduced costs of research); understands the need for further learning; demonstrates creativity in group work; shows responsibility for his/her work.	[SK1] oral statement/conversation/discussion
	[CHEMMU2_U02] Critically assesses the results of conducted, performed observations and theoretical calculations and discusses errors.	After completing the course, each student: can independently build a simple (Q)SAR model and carry it out correctly validate it and predict the dependent variable based on the value structure descriptors; critically verifies the obtained modeling results and is able to relate them to currently applicable regulations.	[SU1] oral statement/conversation/discussion
	[CHEMMU2_W08] Demonstrates knowledge of theoretical computational and IT methods used to solve problems in chemistry.	Upon completion of the course, each student: knows what the basic mechanisms of action of chemotherapeutics are knows what the design of new drugs is knows the basic computer-based methods used in drug design will list the main challenges facing (Q)SAR methods;	[SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report
	[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.	Upon completion of the course, each student: recognises the benefits of using computer methods in the context of social (improving the quality of life of society), ethical (reducing the number of animal testing) and economics (reduced costs of research); understands the need for further learning; demonstrates creativity in group work; shows responsibility for his/her work.	[SK1] oral statement/conversation/discussion
	[CHEMMU2_W10] Uses knowledge of the principles of operation of the basic scientific and research apparatus used in chemistry.	Upon completion of the course, each student: knows what the basic mechanisms of action of chemotherapeutics are knows what the design of new drugs is knows the basic computer-based methods used in drug design will list the main challenges facing (Q)SAR methods;	[SW2] presentation/project/paper/report
	[CHEMMU2_U01] Plans and implements chemical experiments of medium complexity.	After completing the course, each student: can independently build a simple (Q)SAR model and carry it out correctly validate it and predict the dependent variable based on the value structure descriptors; critically verifies the obtained modeling results and is able to relate them to currently applicable regulations.	[SU1] oral statement/conversation/discussion

	Course outcome	Subject outcome	Method of verification
	[CHEMMU2_W06] Applies mathematics to the extent necessary to understand, describe and model chemical processes of medium complexity.	Upon completion of the course, each student: knows what the basic mechanisms of action of chemotherapeutics are knows what the design of new drugs is knows the basic computer-based methods used in drug design will list the main challenges facing (Q)SAR methods;	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
	[CHEMMU2_W07] Selects experimental and theoretical techniques to the extent necessary to understand the description and modelling of medium complexity chemical processes.	Upon completion of the course, each student: knows what the basic mechanisms of action of chemotherapeutics are knows what the design of new drugs is knows the basic computer-based methods used in drug design will list the main challenges facing (Q)SAR methods;	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
	[CHEMMU2_U04] Applies acquired knowledge of chemistry and related scientific disciplines.	After completing the course, each student: can independently build a simple (Q)SAR model and carry it out correctly validate it and predict the dependent variable based on the value structure descriptors; critically verifies the obtained modeling results and is able to relate them to currently applicable regulations.	[SU1] oral statement/conversation/ discussion
Subject contents	Quantitative ways of expressing biological activity Modelling structure-activity relationships Basic techniques in QSAR modelling Review of off-the-shelf models for the design of new commercially available drugs		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written reports/presentations	51.0%	100.0%
Recommended reading	Basic literature	manuals and scientific publications	
	Supplementary literature	manuals and scientific publications	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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