

Subject card

Subject name and code	Introduction to the Principles of Drug Design, PG_00117707						
Field of study	Chemistry						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2025/2026		
Education level	Master's studies		Subject group		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		2.0		
Learning profile	academic		Assessment form				
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Karolina Jagiełło				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	0.0	0.0	30
	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	30		5.0		15.0	50
Subject objectives	To familiarize students with issues related to the mechanisms of action of chemotherapy drugsTo 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_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
	[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_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_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
	[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_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

	Course outcome	Subject outcome	Method of verification
	[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_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_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
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/prezentations	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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