



## Subject card

Subject name and code	Designing new drugs, PG_00049091						
Field of study	Chemistry						
Date of commencement of studies	February 2024		Academic year of realisation of subject		2024/2025		
Education level	second-cycle 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		6.0		
Learning profile	general academic profile		Assessment form		exam		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Paweł Szczepkowski				
	Teachers		dr inż. Paweł Szczepkowski  dr hab. inż. Tomasz Laskowski  dr inż. Julia Borzyszkowska-Bukowska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	30.0	0.0	0.0	60
	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	60		8.0		82.0	150
Subject objectives	The aim of this course is to acquaint students with modern methods of designing chemical molecules with desired properties and especially with desired biological activity. Students will also learn about the mechanisms of drug action at the molecular level, the basic mechanisms of selective toxicity related to it and methods of its determination.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K7_U01		The student is able to find information on the chemistry of natural compounds in databases, understands the structure-activity relationship for biologically active compounds and is able to pre-design new molecules with desired properties using computational methods.		[SU4] Assessment of ability to use methods and tools [SU3] Assessment of ability to use knowledge gained from the subject		
	K7_W03		The student is able to use spreadsheets and other computational tools to find the most optimal structure in terms of biological activity. Is able to use the Hansch and Free-Wilson Method in practice.		[SW3] Assessment of knowledge contained in written work and projects		
	K7_W02		The student knows the basic classes of natural compounds and their structural elements that determine biological activity. He can indicate the basis of selective toxicity in the host-pathogen system.		[SW1] Assessment of factual knowledge		
Subject contents	<ul style="list-style-type: none"><li>• Chemotherapy and selective toxicity</li><li>• Testing potential chemotherapeutics</li><li>• Structure-activity relationships</li><li>• Quantitative structure-activity relationships (QSAR)</li></ul>						
Prerequisites and co-requisites							

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
		60.0%	50.0%
		60.0%	50.0%
Recommended reading	Basic literature	Teaching materials provided by the lecturer	
	Supplementary literature	<ul style="list-style-type: none"><li>J. Mazerski, Podstawy chemometrii, Wydawnictwo Politechniki Gdańskiej, Gdańsk, 2000</li><li>R. B. Silverman, Chemia organiczna w projektowaniu leków, WNT, Warszawa, 2004</li></ul>	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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