



Subject card

Subject name and code	Designing new drugs, PG_00066142						
Field of study	Projektowanie nowych leków						
Date of commencement of studies	February 2025		Academic year of realisation of subject		2025/2026		
Education level	second-cycle studies		Subject group		Specialty 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		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Tomasz Laskowski				
	Teachers		dr inż. Julia Borzyszkowska-Bukowska				
			dr hab. inż. Tomasz Laskowski				
			dr inż. Paweł Szczeblewski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	20.0	0.0	15.0	30.0	0.0	65
	E-learning hours included: 0.0						
	eNauczanie source addresses: Moodle ID: 2147 Projektowanie Nowych Leków https://enauczanie.pg.edu.pl/2025/course/view.php?id=2147						
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	65		5.0		30.0	100
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_W04] indicates methods for the synthesis of chemical compounds with defined properties	The student is able to construct significant and adequate QSAR and QSPR models based on various approaches to the description of chemical compound structures.	[SW1] Ocena wiedzy faktograficznej [SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym
	[K7_U01] integrates and interprets information from literature, databases and other sources	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] Ocena umiejętności korzystania z metod i narzędzi [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu
	[K7_K04] is aware of the responsibility for decisions made, observing and developing the principles of professional ethics and working to ensure compliance with these principles	The student understands that falsifying any research results carries enormous risks and entails an inalienable moral responsibility.	[SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce [SK4] Ocena umiejętności komunikacji, w tym poprawności językowej
	[K7_W05] defines the principles of sustainable development, national and European conditions for environmental management, in the field of intellectual property protection and patent law	The student understands the complexity of drug design, the time and financial costs associated with this process, and is able to assess the feasibility (or lack thereof) of introducing a new drug for a given disease.	[SW1] Ocena wiedzy faktograficznej [SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym
Subject contents	Course content – lecture - Chemotherapy and selective toxicity - Testing potential chemotherapeutics - Structure-activity relationships - Quantitative structure-activity relationships (QSAR) Course content – laboratory - Optimal dose determination - QSAR + QSPR - Statistical analysis of biological studies Course content – project - Working with dataset provided by the lecturer		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Project presentation	60.0%	30.0%
	Laboratory reports	60.0%	40.0%
	Test	60.0%	30.0%
Recommended reading	Basic literature	Teaching materials provided by the lecturer	
	Supplementary literature	J. Mazerski, Podstawy chemometrii, Wydawnictwo Politechniki Gdańskiej, Gdańsk, 2000 R. B. Silverman, Chemia organiczna w projektowaniu leków, WNT, Warszawa, 2004	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Practical activities within the subject	Not applicable		

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