GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	DESIGN OF NEW PHARMACEUTICALS, PG_00063491		
Field of study	PROJEKTOWANIE NOWYCH FARMACEUTYKÓW		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	second-cycle studies	Subject group	Optional subject group Specialty subject group Subject group related to scientific research in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	general academic profile	Assessment form	assessment
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Tomasz Laskowski	
	Teachers	dr inż. Paweł Szczeblewski dr hab. inż. Tomasz Laskowski	

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	15.0	0.0	0.0	30

E-learning hours included: 0.0

eNauczanie source addresses:
Moodle ID: 1388 PROJEKTOWANIE NOWYCH FARMACEUTYKÓW
https://enauczanie.pg.edu.pl/2025/course/view.php?id=1388

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

The aim of this course is to acquaint students with modern methods of designing molecules with the desired properties, and especially with the desired biological activity. Students learn the mechanisms of drug activity at the molecular level, the basic mechanisms of so called selective toxicity as well as the methods of its determination.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K7_W04] selects methods of data analysis, including bioinformatics, statistical and molecular modeling, useful for solving technological and scientific problems in biotechnology and related fields	The student is able to apply various chemometric, statistical, numerical, and computational methods appropriate to the defined project, synthetic, or pharmacological problem.	[SW3] Ocena wiedzy zawartej w opracowaniu tekstowym i projektowym
[K7_K02] is aware of the potential risks and opportunities associated with the development of science and technology for the natural environment and society	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.	[SK2] Ocena postępów pracy [SK5] Ocena umiejętności rozwiązywania problemów występujących w praktyce
[K7_U04] predicts the interaction of biomolecules and biologically active compounds on living organisms and the course of processes involving them based on knowledge in biology, biotechnology and related fields and computer methods of data analysis, modeling and simulation	The student is able to construct significant and adequate QSAR and QSPR models based on various approaches to the description of chemical compound structures.	[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU3] Ocena umiejętności wykorzystania wiedzy uzyskanej w ramach przedmiotu [SU2] Ocena umiejętności analizy informacji [SU1] Ocena realizacji zadania

<table>
<tr><td>Subject contents</td><td>Chemotherapy and selective toxicity

Testing of potential chemotherapeutic agents

Structure - activity relationships

Quantitative Structure Activity Relationships (QSARs)</td></tr>
<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Theory test</td><td>60.0%</td><td>50.0%</td></tr>
<tr><td>Assessment of laboratory reports</td><td>60.0%</td><td>50.0%</td></tr>
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<tr><td>Recommended reading</td><td>
<table>
<tr><td>Basic literature</td><td>Educational materials provided by the lecturer</td></tr>
<tr><td>Supplementary literature</td><td>R.B. Silverman, M.W. Holladay, "The Organic Chemistry of Drug Design and Drug Action", Academic Press, 2014</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
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<tr><td>Example issues/ example questions/ tasks being completed</td><td>Find the relationship between the antimicrobial activity of a specific group of compounds and their physicochemical properties

Find the structure-activity relationships within the particular set of compounds

Find the optimal doses of a given preparation for a specific strain of mice</td></tr>
<tr><td>Practical activites within the subject</td><td>Not applicable</td></tr>
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