

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Medical Chemistry, PG_00053523							
Field of study	Biomedical Engineering, Biomedical Engineering, Biomedical Engineering							
Date of commencement of studies	October 2024		Academic year of realisation of subject			2026/2027		
Education level	first-cycle studies		Subject group			Optional 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	3		Language of instruction			Polish		
Semester of study	6		ECTS credits			4.0		
Learning profile	general academic profile		Assessment form			exam		
Conducting unit	Department of Pharmaceutical Technology and Biochemistry -> Faculty of Chemistry							
Name and surname	Subject supervisor		prof. dr hab. ir	nż. Ryszard An	druszki	ewicz		
of lecturer (lecturers)	Teachers							
Lesson types and methods	Lesson type	Lecture	Tutorial	Laboratory	ory Project Seminar		SUM	
of instruction	Number of study hours	30.0	15.0	0.0	0.0		0.0	45
	E-learning hours inclu	ided: 0.0		i				
Learning activity and number of study hours	Learning activity	Participation in classes includ plan	n didactic ed in study	Participation in consultation hours		Self-st	udy	SUM
	Number of study hours	45		5.0				100
Subject objectives	The aim of the subject	t is to familiariz	the student v	with the basic is	ssues of	f moder	n medical cher	nistry
Learning outcomes	Course outcome Subject outcome Method of verification							
	[K6_W02] knows and understands, to an advanced extent, selected laws of physics and physical phenomena as well as methods and theories explaining the complex relationships between them, constituting the basic general knowledge in the field of technical sciences related to the field of study		The student knows the basic issues of pharmacokinetics and pharmacodynamics of biologically active compounds. The student knows the basic biochemical processes occurring in the human body and has basic knowledge of organic chemistry.			[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge		
	IK6_U53 can apply equipment used in biomedical diagnostics		The student is able to indicate the molecular targets of drugs and the type of interactions between the drug molecule and the molecular target. The student knows the sources of compounds with potential biological activity and knows general principles of research on structure-activity relationships. The student recognizes the types of molecular targets of drugs - receptors, enzymes, nucleic acids. The student knows the basic mechanisms of information transduction by receptors. The student is able to determine the structure of potential drug metabolites by theoretical considerations. and knows the basics of laboratory methods used in research on finding a lead compound. The student knows the stages of clinical trials. The student is able to present the new trends in medicinal chemistry			ISU3J Assessment of ability to analyse information [SU3] Assessment of ability to use knowledge gained from the subject		

Subject contents	Drug-general informations. Naming of drugs. Drug targets. Structure and function of enzymes. Structure and functions of receptors. Structure i functions of nucleic acids. Receptors and signal transduction. G-protein- coupled receptors. Kinase receptors. Intracellular receptors. Enzymes as drug targets. Receptors as drug targets. Nucleic acids as drug targets. Miscellaneous drug targets (structural proteins, cell membrane). Drug metabolism (phase I and phase II metabolism). Drug excretion and metabolites. Choosing a disease. Choosing a drug target. Identifying a bioassay. Finding a lead. Screening of natural products. Medical folklore. Existing drugs. Combinatorial and parallel synthesis. Computer-aided design of lead compound. Enhancing a side effect. Finding a pharmacophore. Optimizing target interactions. Structura-activity relationship. Binding role of functional groups. Functional group exchange. Chain extension/contraction. Ring extension/contraction. Simplification of the structure. Rigidification of the structure. Isosteres. Optimizing access to the target. Getting the drug to market. Clinical trials						
Prerequisites and co-requisites	Organic chemistry and elements of Biochemistry is required						
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade				
	writting exam	60.0%	80.0%				
	oral presentation	60.0%	20.0%				
Recommended reading	Basic literature	"An itroduction to medicinal chemistry" G.L. Patrick. C Press. Nowy Jork 2017					
	Supplementary literature	re "Wybrane zagadnienia z metod poszukiwania i otrzymywania s leczniczych" Pod redakcją Katarzyny Kieć-Kononowicz. Wyda Uniwersytetu Jagiellońskiego. Kraków 2006					
	eResources addresses Adresy na platformie eNauczanie:						
Example issues/ example questions/ tasks being completed							
Work placement	Not applicable						

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