

Subject card

Subject name and code	Cancers and other scourges. From etiology to therapy, PG_00179540						
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 none		
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 hab. Elżbieta Jankowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	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		10.0		15.0	55
Subject objectives	To familiarize students with the causes of diseases that are considered plagues of the 21st century, such as cancer, diabetes, amyloid diseases, hypercholesterolemia and atherosclerosis, as well as viral epidemics. The course also aims to present possible therapeutic approaches to treating these diseases, with particular emphasis on the role of various chemical compounds.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[CHEMMU2_U03] Finds necessary information in specialist literature, databases and other sources, lists basic scientific journals in chemistry.		The student is able to search for, select, and critically analyze scientific literature in the field of chemistry and related disciplines concerning civilization diseases		[SU2] presentation/project/paper/report		
	[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.		The student effectively communicates complex chemical and biomedical issues in an understandable manner.		[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion		
	[CHEMMU2_K05] Understands the need for independent search of information in scientific literature and popular science magazines.		The student demonstrates independence and responsibility in preparing presentations and adheres to the principles of citation ethics and copyright law.		[SK2] presentation/project/paper/report		
	[CHEMMU2_U08] Prepares and presents oral presentations in various fields of chemistry in Polish and English, using acquired knowledge and skills as well as basic sources of scientific information.		The student prepares and delivers oral presentations in Polish and/or English on selected topics related to the course content, using appropriate chemical and biomedical terminology.		[SU2] presentation/project/paper/report		

Subject contents	1. Cancer - molecular and chemical mechanisms: oncogenes, tumor suppressors, environmental carcinogens, mechanisms of carcinogenesis. Chemical strategies in cancer therapy: cytostatics, targeted therapies, platinum-based drugs, resistance mechanisms. 2. Diabetes - biochemical and pathophysiological basis: type 1 and 2 diabetes, insulin resistance, amylin aggregation influence on diabetes development. Antidiabetic agents: natural and synthetic compounds used in diabetes treatment. 3. Amyloid Diseases - protein misfolding and aggregation. Alzheimers, Parkinsons, prion diseases chemical basis and therapeutic approaches. 4. Hypercholesterolemia and atherosclerosis. Lipid metabolism, LDL/HDL balance, oxidative modification of lipids. Chemical compounds in the treatment of cardiovascular diseases: statins, fibrates, PCSK9 inhibitors mechanisms of action and development. 5. Viral Epidemics - chemical and biological aspects. Mechanisms of viral infection, notable outbreaks (HIV, SARS, COVID-19), role of antivirals and vaccines.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	presentation	51.0%	50.0%
	single/multiple choice test	51.0%	50.0%
Recommended reading	Basic literature		- selected chapters from Harper's Biochemistry - related to the topic of the lecture articles from scientific journals
	Supplementary literature		S. Mukherjee, The Emperor of All Maladies: A Biography of Cancer
	eResources addresses		
Example issues/ example questions/ tasks being completed	not applicable		
Work placement	Not applicable		

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