

Subject card

Subject name and code	Receptors and cell signaling, PG_00121250						
Field of study	Chemical Business, Chemistry						
Date of commencement of studies	February 2026		Academic year of realisation of subject		2026/2027		
Education level	Master's studies		Subject group		Optional subject group		
Mode of study	full-time studies		Mode of delivery		e-learning		
Year of study	1		Language of instruction		Polish		
Semester of study	2		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Molecular Modeling -> Department of Theoretical Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Magdalena Ślusarz				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	15.0	0.0	0.0	15
	E-learning hours included: 15.0						
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	15		2.0		8.0	25
Subject objectives	- Familiarize the student with the three-dimensional structures of selected membrane proteins, their ligands, receptor-ligand complexes and their oligomers using simple molecule visualization programs. - Use the information learned in the lecture to evaluate the activity and function of selected proteins.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[CHEMMU2_U04] Applies acquired knowledge of chemistry and related scientific disciplines.		The student uses the knowledge learned in the lecture and knowledge of biochemistry, cell biology and informatics to solve tasks.		[SU5] implementation of a problem task		
	[CHEMMU2_K05] Understands the need for independent search of information in scientific literature and popular science magazines.		The student independently searches the literature and uses the information to perform tasks.		[SK5] implementation of a problem task		
	[CHEMMU2_W02] Has extended and in-depth knowledge in the field of basic chemistry.		Describes the relationship between the structure and activity of receptors presented in the lecture.		[SW5] implementation of a problem task		
Subject contents	Analysis of three-dimensional structures of membrane proteins and their ligands using simple molecular visualization software. Application of the information learned during the lecture to evaluate the activity and function of selected proteins.						
Prerequisites and co-requisites	Organic chemistry.						
Assessment methods and criteria	Subject passing criteria		Passing threshold		Percentage of the final grade		
	The passing grade is the arithmetic average of the partial grades received for the performance of each exercise during the semester.		51.0%		100.0%		
Recommended reading	Basic literature		None				
	Supplementary literature		Patrick G. "An Introduction to Medicinal Chemistry"				

	eResources addresses	
Example issues/ example questions/ tasks being completed	• Comparison of the complexes: receptor-agonist complex and receptor-antagonist complex. • Construction of dimer of the opioid receptors. • Analysis of the oxytocin receptor binding pocket.	
Work placement	Not applicable	

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