

Subject card

Subject name and code	Chemistry of Medicinal Substances, PG_00188301						
Field of study	Chemia substancji leczniczych (Wykład)						
Date of commencement of studies	October 2026		Academic year of realisation of subject			2027/2028	
Education level	Bachelor's studies		Subject group			Obligatory subject group in the field of study 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			1.0	
Learning profile	academic		Assessment form			exam	
Conducting unit	Laboratory of Medical Chemistry -> Department of Biomedical Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Marta Spodzieja				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	To provide knowledge of the fundamental concepts of medicinal chemistry such as therapeutic index, lead structure, drug target, pharmacokinetics, and pharmacodynamics in the context of their relevance for forensic analyses and expert assessments.						
	To present the stages of drug design and development, from the identification of a lead structure to a clinically approved compound, including chemical properties relevant for the interpretation of toxicological and evidential analyses.						
	To discuss the sources of lead structures and typical chemical modifications used in the development of new drugs, with particular emphasis on aspects useful for the identification of psychoactive substances and drugs of abuse in legal proceedings.						
	To familiarize students with the basic chemical research methods applied during drug development and their significance for forensic analyses, including assessment of stability, metabolism, and toxicity of medicinal substances.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[AKRL3_W03] The graduate knows and understands the structure and chemical properties of compounds relevant in forensic examinations.	The student knows the chemical structure and properties of medicinal substances and other compounds used in forensic analyses.	[SW4] test/egzamin - ustny lub pisemny
	[AKRL3_K04] The graduate is ready to cooperate with representatives of other fields—law, medicine, biology—within forensic expertise.	The student is prepared to engage in interdisciplinary collaboration and can clearly communicate the chemical aspects of medicinal substances to professionals in law, medicine, and biology.	[SK4] test/egzamin - ustny lub pisemny
Subject contents	Biological activity, therapeutic index, dose-effect relationship, toxicity and abuse Basic targets of drug action: receptors, enzymes, nucleic acids, lipids Mechanisms of action of narcotics, psychotropic substances, and poisons From drug concept to development Lead structure, sources of lead structures, and lead structure modification Relationship between chemical structure and biological activity Pharmacokinetics: chemical stability of drugs, resistance to metabolism, crossing biological barriers, and elimination from the body Drug interactions with alcohol and narcotics Drug poisoning and abuse Forensic toxicology Pharmaceutical crime and substance manipulation Bioterrorism		
Prerequisites and co-requisites	Completed courses in organic chemistry and general chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam ((a necessary condition for taking the exam is obtaining a positive grade in laboratory exercises)	51.0%	100.0%
Recommended reading	Basic literature Graham L.P., <i>Chemia medyczna. Podstawowe zagadnienia</i>, Wydawnictwo Naukowe WNT, Warszawa, 2003. Graham L.P., <i>Krótkie wykłady. Chemia leków</i>, Wydawnictwo Naukowe PWN, Warszawa, 2004. Silverman R.B., <i>Chemia organiczna w projektowaniu leków</i>, Wydawnictwo Naukowe WNT, Warszawa, 2004. Praca zbiorowa pod red. K. Kieć-Kononowicz, <i>Wybrane zagadnienia z metod poszukiwania i otrzymywania środków leczniczych</i>, Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków, 2006.		

	Supplementary literature	Graham L.P., <i>Chemia medyczna. Podstawowe zagadnienia</i>, Wydawnictwo Naukowe WNT, Warszawa, 2003. Graham L.P., <i>Krótkie wykłady. Chemia leków</i>, Wydawnictwo Naukowe PWN, Warszawa, 2004. Silverman R.B., <i>Chemia organiczna w projektowaniu leków</i>, Wydawnictwo Naukowe WNT, Warszawa, 2004. Praca zbiorowa pod red. K. Kieć-Kononowicz, <i>Wybrane zagadnienia z metod poszukiwania i otrzymywania środków leczniczych</i>, Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków, 2006.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

Document generated electronically. Does not require a seal or signature.