University of Gdańsk

Subject card

Subject name and code	Solid-phase synthesis in peptide-based drug design and production, PG_00179612						
Field of study	Chemistry						
Date of commencement of studies	October 2026		Academic year of realisation of subject	2027/2028			
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	2		Language of instruction	English			
Semester of study	4		ECTS credits	4.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Elżbieta Kamysz				
	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		12.0		58.0	100
Subject objectives	Familiarize students with the solid-phase peptide synthesis (SPPS) and the peptide drug market						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEMMU2_U06] Presents the results of scientific discoveries in chemistry and related disciplines in an understandable way.	The student prepares a presentation on peptide drugs.	[SU2] presentation/project/paper/ report
[CHEMMU2_K06] Undertakes research tasks consciously and responsibly, understanding the social aspects of the practical application of the acquired knowledge and skills and the responsibility related to it.	The student participates in the formulation of the topic of the presentation.	[SK2] presentation/project/paper/ report
[CHEMMU2_U04] Applies acquired knowledge of chemistry and related scientific disciplines.	The student can design the synthesis of a peptide with a specific sequence by the SPPS method.	[SU4] test/exam - oral or written
[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 a presentation on peptide drugs.	[SU2] presentation/project/paper/ report
[CHEMMU2_U03] Finds necessary information in specialist literature, databases and other sources, lists basic scientific journals in chemistry.	The student is able to use various sources of knowledge about peptide synthesis.	[SU2] presentation/project/paper/ report
[CHEMMU2_K01] Knows the limitations of her/his own knowledge; understands the need for further education and can inspire other people to do so.	The student is aware of the advantages and disadvantages of various methods of peptide synthesis and peptide drugs, and understands the need for their further development and continuous training and self-development.	[SK2] presentation/project/paper/ report [SK4] test/exam - oral or written
[CHEMMU2_W11] Demonstrates general knowledge about the current trends in the development of chemistry as a science and the latest discoveries in this field.	The student is able to list peptide drugs, discuss their advantages and disadvantages, and identify current directions and developments.	[SW4] test/exam - oral or written
[CHEMMU2_K05] Understands the need for independent search of information in scientific literature and popular science magazines.	The student realizes the need to search various literature sources to find solutions to problems that arise during synthesis.	[SK2] presentation/project/paper/ report
[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	The student: presents the structure of peptides; knows the principles of peptide nomenclature; characterizes SPPS; has knowledge of the impact of chemical reagents used in peptide synthesis on the environment and human health; compares different methods of peptide synthesis; knows and understands the possibilities of using peptides for scientific and medical purposes; lists applications of peptides in medicine.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report

Subject contents

Structure of peptide bond and structures of peptides; concepts of peptide drug design; methods of solid-phase peptide synthesis (synthesis carriers, protective groups, methods of peptide bond formation, side reactions), comparison of methods of peptides synthesis on laboratory and industrial scale; environmental aspects in SPPS; peptide drugs - current applications and future directions.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
presentation	51.0%	30.0%
test (open and closed questions covering lecture material)	51.0%	70.0%

Recommended reading

Basic literature	Literature required to pass the course: scientific papers indicated by the lecturer; monographic materials indicated by the lecturer.
Supplementary literature	Graham P.: An Introduction to Medicinal Chemistry, Oxford 2017; Ng R., Drugs: from Discovery to Approval, Wiley-Blackwell 2015.

	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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