University of Gdańsk

Subject card

Subject name and code	HPLC analysis of biologically active compounds, PG_00179574						
Field of study	Chemistry						
Date of commencement of studies	October 2025		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	at the university			
Year of study	2		Language of instruction	Polish			
Semester of study	4		ECTS credits	1.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Piotr Mucha				
	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		3.0		7.0	25
Subject objectives	The aim of the course is to provide students with knowledge on the application of high-performance liquid chromatography (HPLC) in the analysis of biologically active compounds.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEMMU2_W03] Demonstrates extended knowledge in the field of modern measuring techniques used in chemical analysis.	The student demonstrates knowledge of modern HPLC	[SW4] test/exam - oral or written
[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 information available in the literature necessary to plan HPLC analysis of selected groups of compounds	[SU4] test/exam - oral or written
[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 demonstrates knowledge of the material/ stationary phase column used in HPLC analysis	[SK4] test/exam - oral or written
[CHEMMU2_U10] Reads with understanding scientific and popular science chemical texts in English.	The student is proficient in concepts related to liquid chromatography, especially HPLC	[SU4] test/exam - oral or written
[CHEMMU2_W10] Uses knowledge of the principles of operation of the basic scientific and research apparatus used in chemistry.	The student is proficient in concepts related to liquid chromatography, especially HPLC.	[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 is able to use information about the operation of HPLC equipment found in the literature	[SK4] test/exam - oral or written
[CHEMMU2_U01] Plans and implements chemical experiments of medium complexity.	The student is able to plan an HPLC analysis and determine the conditions for separation	[SU4] test/exam - oral or written

Subject contents

Basic concepts of liquid chromatography, reversed-phase chromatography, the principle of separation in reversed-phase high-performance liquid chromatography (RP HPLC), gradient and isocratic elution, HPLC with a mass detector (HPLC MS), HILIC method, HPLC methods for determining selected groups of biologically active compounds

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test questions	50.0%	100.0%

Recommended reading

Basic literature	Irena Malinowska, Waldemar Wardencki, Zygfryd Witkiewicz, Chromatografia cieczowa teoria i praktyka, PWN, 2019 Joanna Kałużna-Czaplińska, Zygfryd Witkiewicz, Podstawy chromatografii i technik elektromigracyjnych, PWN, 2023
Supplementary literature	Zygfryd Witkiewicz, Podstawy chromatografii, PWN, 1992
eResources addresses	

Example issues/ example questions/ tasks being completed

What stationary phases are used in RP HPLC?
What is the difference between isocratic and gradient methods in liquid chromatography?

Work placement

Not applicable

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