

**Subject card**

<b>Subject name and code</b>	HPLC analysis of biologically active compounds, PG_00179574						
<b>Field of study</b>	Chemistry						
<b>Date of commencement of studies</b>	October 2026	<b>Academic year of realisation of subject</b>			2027/2028		
<b>Education level</b>	Master's studies	<b>Subject group</b>			Optional subject group		
<b>Mode of study</b>	full-time studies	<b>Mode of delivery</b>			at the university		
<b>Year of study</b>	2	<b>Language of instruction</b>			Polish		
<b>Semester of study</b>	4	<b>ECTS credits</b>			1.0		
<b>Learning profile</b>	academic	<b>Assessment form</b>			credit		
<b>Conducting unit</b>	Faculty of Chemistry -> Rector						
<b>Name and surname of lecturer (lecturers)</b>	<b>Subject supervisor</b>		dr hab. Piotr Mucha				
	<b>Teachers</b>						
<b>Lesson types</b>	<b>Lesson type</b>	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	<b>Number of study hours</b>	15.0	0.0	0.0	0.0	0.0	15
	E-learning hours included: 0.0						
<b>Learning activity and number of study hours</b>	<b>Learning activity</b>	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	<b>Number of study hours</b>	15		3.0		7.0	25
<b>Subject objectives</b>	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_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
	[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_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_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_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_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_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	
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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