University of Gdańsk

Subject card

Subject name and code	Practical use of HPLC, PG_00058750						
Field of study	Chemistry						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	Bachelor's studies		Subject group	Optional subject group			
Mode of study	full-time studies		Mode of delivery	at the university			
Year of study	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	2.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Department of Bioinorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Aleksandra Dąbrowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	20.0	0.0	0.0	20
	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	20		4.0	26.0	50	
Subject objectives	Understanding the theoretical foundations of HPLC and UHPLC. Practical skills in operating UHPLC. Sample preparation for analysis. Conducting HPLC analyses. Optimization of analytical conditions. Troubleshooting analytical problems. Documentation and reporting of results. Safety in the HPLC laboratory. Ethics in laboratory work.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEML3_K05] Observes established procedures in laboratory work and is responsible for the safety of her/his and others' work.	Verifies and respects the opinions of other team members. Is responsible for the safety of his own and others' work.	[SK2] presentation/project/paper/ report
[CHEML3_W05] Has basic knowledge of the chemical specialisation studied.	Demonstrates extended knowledge of modern measurement techniques (HPLC and UHPLC) used in chemical analysis.	[SW4] test/exam - oral or written
[CHEML3_U07] Prepares documented elaboration on a specific problem in the field of selected chemical and physical issues.	Presents the results of experiments at an advanced level. Applies acquired chemical knowledge to analyze problems in chemistry and related fields.	[SU2] presentation/project/paper/ report
[CHEML3_W10] Enumerates and describes the basic aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemistry and related sciences.	Explains the theoretical basis of operation of measuring equipment used in chemical research.	[SW4] test/exam - oral or written
[CHEML3_K02] Works individually demonstrating initiative and independence of activity and cooperates in a team fulfilling various roles in it.	Understands responsibility for experiments and scientific research.	[SK2] presentation/project/paper/ report
[CHEML3_K01] Identifies the level of her/his own knowledge and skills and the need for continuous learning and personal development.	Is critical of media information, especially in the field of instrumental methods. Understands the need for systematic familiarization with professional references, self-education and lifelong learning.	[SK2] presentation/project/paper/ report [SK4] test/exam - oral or written
[CHEML3_U02] Performs analyses using experimental methods and draws conclusions based on them.	Applies acquired knowledge to analyze problems. Plans and performs scientific experiments.	[SU2] presentation/project/paper/ report [SU4] test/exam - oral or written
[CHEML3_W12] Characterises the basic principles of health and safety at work in a chemical laboratory; knows and describes the hazards associated with working with hazardous substances, ways to counteract these hazards and rules of conduct during an accident.	Complies with basic occupational health and safety rules necessary to organize a research station.	[SW2] presentation/project/paper/ report
[CHEML3_U04] Plans and performs simple chemical experiments and analyses the results obtained.	Prepares the results of experimental research. Performs critical analysis and indicates measurement errors. Justifies the purpose of the research carried out.	[SU2] presentation/project/paper/ report

Subject contents

Introduction to HPLC. Preparation of samples for analysis. Configuration and calibration of the HPLC apparatus. Conducting HPLC analyses. Optimization of analytical conditions. Detection and interpretation of results. Troubleshooting of analytical problems. Documentation and reporting of results. Safety and hygiene in the HPLC laboratory. Practical applications of HPLC.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test (theory)	51.0%	50.0%
test (practice)	51.0%	50.0%

Recommended reading

Basic literature

1. M. Dong, *HPLC and UHPLC for Practicing Scientists,* Wydawnictwo Blackwell Science (2019).
2. L. E. Reubseat, G. Tyge, 2. Chromatography, Wydawnictow Wiley Vch Verlag Gmbh (2019).
3. R. Rosset, H. Kołodziejczyk, *Współczesna chromatografia cieczowa, ćwiczenia i zadania*, Wydawnictwo Naukowe PWN (2000).
4. D. Corradini, T.M. Philips, Handbook of HPLC, CRC Press (2011).

	Supplementary literature	1. References recommended by the lecturer. 2. Exercise instructions.
	eResources addresses	Basic https://bg.ug.edu.pl/ - books Supplementary https://chemia.ug.edu.pl/wydzial/katedry/katedra-chemii-bionieorganicznej/informacje-i-materialy-dla-studentow - Exercise instructions
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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