

Subject card

Subject name and code	Advanced analitical methods, PG_00153696						
Field of study	Zaawansowane metody analityczne						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Optional subject group 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	4		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Zespół Laboratoriów Specjalistycznych MWB UG i GUMed -> Intercollegiate Faculty of Biotechnology UG-MUG -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Katarzyna Macur				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	10.0	20.0	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		5.0		15.0	50
Subject objectives	The aim of the course is to familiarize students with selected advanced analytical techniques. During the course, various chromatographic techniques used in the study of biologically active compounds (small molecule organic compounds (secondary metabolites), peptides and proteins will be discussed, including techniques based on unique technologies, e.g. high performance liquid chromatography and mass spectrometry detection. During the classes, students will independently conduct each of the experiments and operate specialized research equipment under the supervision of the instructor.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[BIOTECHL3_W07] The graduate knows and understands basic techniques and research tools used in biotechnology.		The student has knowledge of selected advanced analytical techniques used in biotechnology, in the study of biologically active compounds (small molecule organic compounds (secondary metabolites), peptides and proteins). In particular, this applies to chromatographic techniques, including high-performance liquid chromatography and mass spectrometry detection.		[SW4] test/egzamin - ustny lub pisemny [SW2] prezentacja/projekt/referat/ raport		
	[BIOTECHL3_U08] The graduate is able to learn independently in a targeted manner		The student learns to independently conduct each of the experiments and, under the supervision of the instructor, to operate specialized research equipment.		[SU2] prezentacja/projekt/referat/ raport [SU4] test/egzamin - ustny lub pisemny		

Subject contents	1. Preparation of samples for analysis. 2. Chromatography 3. High Performance Liquid Chromatography (HPLC). 4. Mass spectrometry (MS)5. Liquid chromatography-mass spectrometry (LC-MS).		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final test	51.0%	70.0%
	Reports from the laboratory classes	51.0%	30.0%
Recommended reading	Basic literature	1. Przygotowanie próbek do analizy / Agata Kot-Wasik, Anna Jakimska, Andrzej Wasik. Wydawnictwo Politechniki Gdańskiej 2012 Gdańsk : Wydawnictwo Politechniki Gdańskiej SR.26.3.0 2. Techniki separacyjne / Piotr Stepnowski [et al.]. Europejski Fundusz Społeczny Wydawnictwo Uniwersytetu Gdańskiego 2010 Gdańsk : Wydawnictwo Uniwersytetu Gdańskiego CH.21.9.5.3	
	Supplementary literature		
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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