

Subject card

Subject name and code	Persistent organic pollutants - laboratory exercises, PG_00117790						
Field of study	Oceanography						
Date of commencement of studies	October 2024	Academic year of realisation of subject			2024/2025		
Education level	postgraduate studies	Subject group			Obligatory subject group in the field of study		
Mode of study	full-time studies	Mode of delivery			at the university		
Year of study	1	Language of instruction			Polish		
Semester of study	2	ECTS credits			2.0		
Learning profile	academic	Assessment form					
Conducting unit	Katedra Oceanografii Chemicznej i Geologii Morza -> Faculty of Oceanography and Geography						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Marta Staniszevska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	30.0	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		2.0		20.0	52
Subject objectives	Familiarization with basic sample preparation techniques and final determination of organic pollutants at trace levels. Preparing students to use chromatographic techniques, their optimization and validation. Preparing students for the determination of selected POPs in marine samples. Calculations and interpretation of results based on obtaining information from various sources.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OCEANMU2-U12] can independently expand and update oceanographic knowledge when planning and developing a professional career, as well as motivates others to deepen their knowledge	can independently expand and update knowledge about POPs	[SU2] presentation/project/paper/report
	[OCEANMU2-U01] is able to formulate and solve complex and unusual problems regarding the functioning of individual components of the marine environment using knowledge from various fields and scientific disciplines and propose solutions	is able to formulate and solve complex problems regarding the determination of POPs in the marine environment	[SU2] presentation/project/paper/report [SU8] observation of student's independent or team work
	[OCEANMU2-K01] is ready to plan, implement and supervise, individually or collectively, next stages of the entrusted task, is ready to take responsibility for its results, cooperates effectively in the team and performs its functions in it various functions, including managerial ones	is ready to plan and carry out laboratory tests on organic pollutants	[SK8] observation of student's independent or team work
[OCEANMU2-W01] knows and understands in-depth specialized terminology used in oceanography and related sciences (in Polish and a selected foreign language)	knows and understands specialized terminology organic pollutants and their determination	[SW4] test/exam - oral or written [SW2] presentation/project/paper/report	
Subject contents	<p>B.1 familiarization with collecting, storing and preparing samples (water, bottom sediments, organisms, aerosols) for the determination of organic compounds at trace levels B.2 basics of chromatographic determinations B.3 determination of selected organic pollutants using liquid chromatography (HPLC) in marine samples, calculations and interpretation of results B.4. optimization and validation of chromatographic methods</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	report 1	51.0%	10.0%
	report 2	51.0%	10.0%
	card work 1	51.0%	10.0%
	card work 2	51.0%	10.0%
	test 2	51.0%	20.0%
	test 1	51.0%	20.0%
	presentation	51.0%	20.0%
Recommended reading	Basic literature	<p>Dojlido J., Zerbe J., 1997, Instrumental methods for testing water and sewage, Ed. Arcades, 271 Namieśnik J., Łukasiak J., Jamrógiewicz Z., 1995, Taking environmental samples for analyses, Ed. PWN, Warsaw Kocjan R., ANALYTICAL CHEMISTRY, vol.2. ,Instrumental analysis Szczepaniak W., Instrumental methods in chemical analysis, PWN, Warsaw 2004 Witkiewicz Z., Basics of chromatography, WNT, Warsaw 1995</p>	
	Supplementary literature	-	
	eResources addresses	Adresy na platformie eNauczanie:	

<p>Example issues/ example questions/ tasks being completed</p>	<p>Issues of collecting, storing and preparing samples for determining organic pollutants at trace levels Issues of chromatographic determinations, validation of chromatographic methods. Practical aspects of determining selected organic pollutants using liquid chromatography (HPLC) in marine samples, calculations and interpretation of results</p>
<p>Work placement</p>	<p>Not applicable</p>

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