University of Gdańsk

Subject card

Subject name and code	Diploma lecture - Modern technologies in environmental analysis, PG_00081824		
Field of study	Medical Biology		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2024/2025
Education level	postgraduate studies	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	2.0
Learning profile	academic	Assessment form	
Conducting unit	Katedra Analizy Środowiska -> Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor		
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	0.0	0.0	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	0.0	0.0	30

Subject objectives

1. To familiarize students with the basic knowledge of environmental pollution
2. To introduce students to risk assessment and toxic effects of pollutants on organisms
3. To familiarize students with the main steps of the analytical process
4. To introduce students to the basics of methods of extraction, purification and analysis of organic compounds
5. To introduce students to the principles of designing an analytical process on the basis of the nature, structure and properties of a chemical compound
6. Developing the ability to independently propose the course of a simple analytical process.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLMEDMU2_W01] has in-depth knowledge of scientific fields and disciplines relevant to medical biology and the specialty being studied, and knows their main development trends		[SW4] test/exam - oral or written
[BIOLMEDMU2_W02] is familiar with currently discussed problems in medical biology and related disciplines		[SW4] test/exam - oral or written
[BIOLMEDMU2_K02] is willing to recognise the importance of knowledge in solving cognitive and practical problems and to consult experts in the event of difficulties in solving the problem on his/her own		[SK4] test/exam - oral or written

Subject contents

Classification, sources and fate of selected environmental pollutants. The most important physicochemical properties of environmental pollutants. Stages of the analytical process. Planning the analytical process on the basis of the properties of chemical compounds. Extraction of pollutants from selected environmental matrices. Purification and separation of analyzed substances. Chromatographic and spectroscopic techniques in the analysis of environmental pollutants. The course of the analytical process with examples of selected environmental pollutants. Toxicity of chemical compounds in the environment.

Prerequisites and co-requisites

General chemistry, organic chemistry, inorganic chemistry, analytical chemistry, physical chemistry.

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam (120 min)	51.0%	100.0%
Recommended reading	Basic literature	Stepnowski P., Synak E., Szafranek B., Kaczyński Z. Techniki separacyjne. Wydawnictwo UG 2010. Witkiewicz Z. Podstawy chromatografii, Wydawnictwa Naukowo-Techniczne, Warszawa, 2005. Szczepaniak W. Metody instrumentalne w analizie chemicznej, Wydawnictwo Naukowe PWN, Warszawa, 2002.	
	Supplementary literature	Alloway B.J., Ayres D.C. Chemiczne podstawy zanieczyszczania środowiska, PWN, Warszawa, 1999. Van Loon G.W., Duffy S.J. Chemia środowiska, PWN, Warszawa, 2008. Namieśnik i in. Przygotowanie próbek środowiskowych do analizy, WNT, W-wa, 2000. Johnstone R.A.W., Rose M.E. Spektrometria mas. Podręcznik dla chemików i biochemików. PWN, Warszawa, 2001.	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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