University of Gdańsk

Subject card

Subject name and code	Analytical chemistry, PG_00050792		
Field of study	Environmental Protection		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Bachelor's studies	Subject group	Obligatory subject group in the field of study 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	3	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Alicja Boryło	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	0.0	15.0	0.0	0.0	0.0	15

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	15	2.0	8.0	25

Subject objectives

The aim of the classes is to improve skills and familiarize students with all issues mentioned in the lecture program as well as task calculation

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OŚL3_W11] Discusses measurement systems and analysis techniques used in monitoring the state of the natural environment.	knows techniques for monitoring the state of the natural environment	[SW4] test/exam - oral or written [SW3] text preparation/written work
[OŚL3_U11] Uses statistical methods as well as algorithms and IT techniques, including application software packages to describe environmental experiments and analysis of typical data in socio-economic activities based on science and natural sciences.	Based on mathematical methods, he can describe environmental experiments and use exact and natural sciences to interpret economic and social activities	[SU3] text preparation/written work [SU4] test/exam - oral or written

Subject contents	Validation of analytical methods Chemical analysis I group of cations II group of cations III group of cations Qualitative analysis of selected anions Manganometry Redoximetry Precipitation and complexometric analysis Weight analysis Buffers Titration curves
Prerequisites and co-requisites	General and inorganic chemistry

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
test	51.0%	100.0%

Recommended reading	Basic literature	Jerzy Minczewski, Zygmunt Marczenko, Analytical chemistry, PWN, Warsaw, 2019, volumes 1 and 2 Jan Dobrowolski, Analytical chemistry, PZWL, Warsaw Tadeusz Lipiec, Zdzisław Szmal, Analytical chemistry with elements of instrumental analysis, PZWL, Warsaw Ryszard Kocjan, Analytical chemistry, PZWL, volume 1 Andrzej Cygański, Chemical methods of quantitative analysis, WNT, Warsaw, 2017 (only for the second part, i.e. quantitative analysis) Douglas A. Skoog, Donald M. West, James F. Holler, Stanley R. Crouch, Fundamentals of analytical chemistry, PWN, Warsaw Lecture notes

	Supplementary literature	Hamilton L.F., Simpson S.G., Ellis D.W., Calculations in analytical chemistry, WNT, Warsaw, 1973 Wesołowski M., Głoser K., Zimna D., Collection of tasks from chemical analysis, WNT, Warsaw, 2002 Galus Z., Calculus exercises in analytical chemistry, PWN, 2019
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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