University of Gdańsk

Subject card

Subject name and code	Analytical Chemistry, PG_00188278		
Field of study	Chemia analityczna (Ćw.laboratoryjne)		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2026/2027
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	1	Language of instruction	Polish
Semester of study	2	ECTS credits	2.0
Learning profile	academic	Assessment form	credit
Conducting unit	Department of Analytical Chemistry -> Faculty of Chemistry -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Dorota Zarzeczańska	
	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	5.0	15.0	50

Subject objectives

1. Mastering basic qualitative and quantitative techniques of classical analysis used in the examination of evidence materials.
2. Acquiring the ability to safely perform laboratory operations in accordance with health and safety regulations.
3. Developing the ability to interpret results and formulate analytical conclusions.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[AKRL3_W10] The graduate knows and understands the principles of safe work in chemical and biological laboratories, including procedures for handling hazardous and infectious materials.	The student is able to correctly perform basic laboratory operations (weighing, pipetting, preparing solutions, precipitation and redox reactions). The student explains the theoretical foundations of the qualitative and quantitative analyses performed.	[SW4] test/egzamin - ustny lub pisemny
[AKRL3_U09] The graduate is able to independently plan and implement their professional development and lifelong learning.	The student adheres to the principles of ethics, professional confidentiality, and integrity when working with evidence material.	[SU8] obserwacja samodzielnej lub zespołowej pracy studenta
[AKRL3_U02] The graduate can plan and organize individual and team work and collaborate with others in team projects (including interdisciplinary teams).	1. The student is able to perform basic laboratory procedures in accordance with established protocols. 2. The student prepares laboratory reports and documents the course of the work.	[SU7] wpisy i opinia w dzienniczku praktyk [SU8] obserwacja samodzielnej lub zespołowej pracy studenta
[AKRL3_K04] The graduate is ready to cooperate with representatives of other fields—law, medicine, biology—within forensic expertise.	The student demonstrates responsibility for the measurements performed and their documentation, and understands the consequences of errors in the context of forensic procedures.	[SK8] obserwacja samodzielnej lub zespołowej pracy studenta

Subject contents

1. Health and safety in the chemical laboratory. Work organization.
2. Qualitative determination of cations analytical groups.
3. Qualitative determination of anions precipitation methods and characteristic reactions.
4. Solubility analysis of precipitates and ion detection..
5. Quantitative analysis introduction to titration.
6. Acidbase (alkacimetric) titration.
7. Precipitation titration.
8. Complexometric titration.
9. Processing of results analytical calculations and measurement errors.

Prerequisites and co-requisites

1. Knowledge of the fundamentals of general chemistry.
2. Knowledge of basic concepts in stoichiometry and chemical equilibria.
3. Ability to work with simple laboratory equipment.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Three mid-term tests.	51.0%	60.0%
Laboratory work – analytical results within the acceptable error range.	0.0%	40.0%

Recommended reading

Basic literature	1. J. Minczewski and Z. Marczenko, *Analytical Chemistry*, Vol. 1 and 2, PWN, Warsaw. 2. T. Lipiec and Z. S. Szmal, *Analytical Chemistry with Elements of Instrumental Analysis*, PZWL, Warsaw. 3. H. Bentkowska, *Qualitative Analytical Chemistry*, PG course script. 4. A. Cygański, *Chemical Methods of Quantitative Analysis*, WNT.
Supplementary literature	1. D. Harvey, Modern Analytical Chemistry, McGraw Hill Companies, Inc.
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable

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