University of Gdańsk

Subject card

Subject name and code	Analysis of natural origin products, PG_00073415		
Field of study	Chemistry		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
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	2	Language of instruction	Polish
Semester of study	3	ECTS credits	2.0
Learning profile	academic	Assessment form	
Conducting unit	Faculty of Chemistry		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Ewa Mulkiewicz	
	Teachers		

Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	45.0	0.0	0.0	45
	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	45	1.0	4.0	50

Subject objectives
1. To familiarize students with analytical techniques used to analyze compounds in natural products. 2. Obtaining the ability to independently perform calculations necessary for the interpretation of the results of analysis. 3. Obtaining the ability to independently select the appropriate analytical technique for a given purpose. 4. Obtaining practical skills regarding procedures in a chromatographic laboratory.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEMMU2_U02] Critically assesses the results of conducted, performed observations and theoretical calculations and discusses errors.	Draws conclusions from experimental data. Is able to present the results of quantitative and qualitative analyses. Critically evaluates the results of conducted analyses. Is able to interpret and discuss the obtained analysis results. In discussions regarding analytical and instrumental chemistry professional terminology.	[SU3] text preparation/written work [SU4] test/exam - oral or written
[CHEMMU2_U04] Applies acquired knowledge of chemistry and related scientific disciplines.	Knows and describes selected techniques and research tools used in the analysis of compounds in natural products. Is able to perform quantitative and qualitative analyses. Is able to independently operate scientific and research equipment.	[SU3] text preparation/written work [SU4] test/exam - oral or written
[CHEMMU2_W05] Has extended knowledge in the field of the specialisation studied.	Applies acquired knowledge of chemistry to select the appropriate analytical method for a given compound. Is able to plan and perform experiments in the analytical laboratory and analyze and interpret their results.	[SW4] test/exam - oral or written [SW3] text preparation/written work
[CHEMMU2_W10] Uses knowledge of the principles of operation of the basic scientific and research apparatus used in chemistry.	Knows the structure and principles of operation of selected scientific and research equipment used in the analysis of compounds in natural products.	[SW4] test/exam - oral or written [SW3] text preparation/written work
[CHEMMU2_W02] Has extended and in-depth knowledge in the field of basic chemistry.	Knows techniques such as gas chromatography, high-performance liquid chromatography, thin-layer chromatography, UV/Vis spectroscopy. Is able to perform quantitative and qualitative analyzes using these techniques.	[SW4] test/exam - oral or written [SW3] text preparation/written work

Subject contents

Extraction and determination of the content of organic compounds in natural products. Qualitative and quantitative analysis using chromatographic and spectroscopic techniques such as: gas chromatography, high-performance liquid chromatography, thin-layer chromatography, UV/Vis spectroscopy, mass spectrometry.

Prerequisites and co-requisites

Knowledge of basic issues in general chemistry, organic chemistry, inorganic chemistry and analytical chemistry.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
	51.0%	50.0%
	51.0%	50.0%

Recommended reading

Basic literature	Stepnowski P., Synak E., Szafranek B., Kaczyński Z. Techniki separacyjne. Wydawnictwo UG, 2010. Witkiewicz Z. Podstawy chromatografii, WNT, Warszawa, 2005. Johnstone W. R. A., Rose M. E., Spektrometria mas, PWN, Warszawa, 2001. Grajek W.(red.), Przeciwutleniacze w żywności. Aspekty zdrowotne, technologiczne, molekularne i analityczne. WNT, Warszawa, 2007. Silverstein R.M., Webster F. X., Kiemle D. J., Spektroskopowe metody identyfikacji związków organicznych, PWN, Warszawa, 2007.
Supplementary literature	Kocjan R. Chemia analityczna. Podręcznik dla studentów. Tom 2. PZWL, Warszawa, 2000. Szczepaniak W. Metody instrumentalne w analizie chemicznej, PWN, Warszawa, 1996. Witkiewicz Z., Hepter J. Chromatografia gazowa, WNT, Warszawa, 2009. Minczewski J., Marczenko Z., Chemia analityczna, tom III, PWN, Warszawa, 1986 Kohlmunzer S. Farmakognozja. Wydawnictwo Lekarskie PZWL. Warszawa, 1993. Kączkowski J. Biochemia roślin. Wydawnictwo Naukowe PWN. Warszawa, 1993 Sikorski Z. E.(red.), Chemia Żywności, wyd. 4, WNT, Warszawa, 2002. Klepacka M. (red.), Analiza żywności, Fundacja Rozwój SGGW, Warszawa, 2005.
eResources addresses	Adresy na platformie eNauczanie:

Example issues/ example questions/ tasks being completed

Work placement	Not applicable

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