University of Gdańsk

Subject card

Subject name and code	Food analysis, PG_00082060						
Field of study	Chemistry						
Date of commencement of studies	October 2024		Academic year of realisation of subject	2026/2027			
Education level	Bachelor's 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	3		Language of instruction	Polish			
Semester of study	5		ECTS credits	3.0			
Learning profile	academic		Assessment form	credit			
Conducting unit	Department of Environmental Analysis -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Monika Paszkiewicz					
	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		8.0		22.0	75
Subject objectives	- To familiarise students with the techniques used in food analysis - To introduce students to the basics of calculations necessary for the correct interpretation of analytical results, - To acquire the ability to independently select the appropriate analytical technique for the objective set.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[CHEML3_U03] Selects the appropriate equipment and laboratory apparatus for conducting uncomplicated chemical experiments.	- Is able to carry out the determination of basic of food ingredients, selected food contaminants, detection of certain food adulterants by analytical and instrumental methods	[SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work
[CHEML3_W10] Enumerates and describes the basic aspects of the construction, operation and use of measuring apparatus and equipment used in experimental works in the field of chemistry and related sciences.	- Understands the main objectives and importance of food analysis - Knows the basic principles of sampling and sample preparation for food analysis food analysis - Knows and describes the methods of determining the main nutrients and food additives - Understands and describes methods of determining food contaminants and food adulteration - Knows and describes methods of determining selected carcinogenic and anticancer compounds present in food products	[SW4] test/exam - oral or written
[CHEML3_U02] Performs analyses using experimental methods and draws conclusions based on them.	- Observes established analytical procedures in the determination of food ingredients determination of food components, food additives - Formulates opinions on issues related to food analysis	[SU2] presentation/project/paper/ report [SU8] observation of student's independent or team work
[CHEML3_K02] Works individually demonstrating initiative and independence of activity and cooperates in a team fulfilling various roles in it.	- Takes responsibility for the results of the team's work	[SK8] observation of student's independent or team work
[CHEML3_W08] Demonstrates knowledge of basic computational methods to solve problems in chemistry, physics, mathematics.	- Knows with quantitative analysis methods - Understands basic food quality control and assessment issues	[SW4] test/exam - oral or written
[CHEML3_K01] Identifies the level of her/his own knowledge and skills and the need for continuous learning and personal development.	- Understands the need for further training	[SK8] observation of student's independent or team work
[CHEML3_K05] Observes established procedures in laboratory work and is responsible for the safety of her/his and others' work.	- Is responsible for his/her own and others' safety at work: knows how to act is responsible for his/ her own safety at work and that of others: knows how to act in emergencies, is careful when handling chemical substances, is cautious when handling measuring equipment	[SK8] observation of student's independent or team work
[CHEML3_U05] Uses basic statistical methods and IT techniques to describe chemical processes and analyse experimental data.	- Evaluates the results obtained using basic statistical tools	[SU2] presentation/project/paper/ report

Subject contents

Scope and importance of food analysis. Principles of sampling and preparation of samples for food analysis. Chemical, instrumental and sensory analysis techniques used to control and assess food quality. Methods of determination of basic food ingredients and food additives. Methods of detecting food adulteration and contamination. Methods for the determination of selected carcinogenic and anticancer compounds in food products. Examples of the use of chromatographic, spectrophotometric and mass spectrometric methods for food analysis. Quality assessment of raw materials and food products. Preparation, statistical evaluation and interpretation of analytical results.
Problems of laboratory exercises:
Preparation of food samples for specific analysis. Qualitative and quantitative analysis using chemical methods and instrumental methods such as gas chromatography, high-performance liquid chromatography and UV/Vis spectroscopy for food analysis. Practical application of selected sensory analysis methods to assess the quality of food products.

Prerequisites and co-requisites

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

Knowledge of basic general chemistry, organic chemistry, inorganic chemistry and the main concepts of microbiology. Theoretical basis of the main analytical techniques (chemical and instrumental).

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Reports	51.0%	20.0%
Sub-tests	51.0%	40.0%
Final test on all exercise material	51.0%	40.0%

Recommended reading	Basic literature	Kumirska J., Gołębiowski M., Paszkiewicz M., Bychowska A. Food analysis, UG Publisher, Gdańsk 2010
	Supplementary literature	Edited by Klepacka M. Food analysis, SGGW Development Foundation, Warsaw, 2005. Edited by Małecka M. Selected methods of food analysis, Published by the Academy of Economics in Poznań, Poznań, 2003. Edited by Sikorski Z.E. Food Chemistry, 5th Edition, WNT, Warsaw, 2007.
	eResources addresses	
Example issues/ example questions/ tasks being completed		
Work placement	Not applicable	

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