University of Gdańsk

Subject card

Subject name and code	Food analysis, PG_00103580		
Field of study	Environmental Protection		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2028/2029
Education level	Bachelor's studies	Subject group	Optional subject group
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	6	ECTS credits	1.0
Learning profile	academic	Assessment form	exam
Conducting unit			
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	15.0	0.0	0.0	0.0	0.0	15

E-learning hours included: 0.0

Additional information:

Lecture with multimedia presentation

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

To introduce students with the basic techniques used in food analysis.

To introduce students with basic information about the chemical composition of food (main nutrients, food additives and food contamination).

To Introduce students with the basics of calculations necessary for correct interpretation of analysis results.

To develop the ability to independently select the right analytical technique for the goal.

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OŚL3_U04] Uses specialist language in the discussion and properly uses the nomenclature in the field of environmental protection and individual disciplines related to it.	Student formulates opinions on basic issues related to food analysis. Student evaluates the obtained results using basic statistical tools.	[SU4] test/exam - oral or written [SU8] observation of student's independent or team work
	[OŚL3_W05] Explains the course of natural and anthropopressional physical, chemical and biological processes and phenomena occurring in nature at various levels of matter organisation.	Student defines the sources and causes of food contamination with carcinogenic and/or mutagenic ingredients.	[SW4] test/exam - oral or written
	[OŚL3_U01] Performs tasks under supervision and independently in the field of analysis of the natural environment and the functioning of natural and man-made natural systems.	Student demonstrates the ability to determine basic food ingredients, selected food contaminants, and detect some food adulterations using analytical and instrumental methods. Student follows established analytical procedures for determining food ingredients, food additives, etc.	[SU4] test/exam - oral or written
	[OŚL3_W08] Explains the mechanisms of economic and consumer pressure on the environment and recognises the possibilities of reducing it using the latest knowledge and scientific achievements.	Student understands basic issues related to food quality control and assessment.	[SW4] test/exam - oral or written
	[OŚL3_K01] Behaves in a professional manner at all times; bears full responsibility for the actions taken relating to the protection of the environment and respects the principles of professional ethics and principles of intellectual honesty.	Student demonstrates responsibility for the safety of her/ his own and others' work and for the workplace, and correctly follows the rules of conduct during work with chemical substances and laboratory equipment. Student respects the principles of professional ethics and principles of intellectual honesty.	[SK4] test/exam - oral or written [SK8] observation of student's independent or team work
	[OŚL3_W10] Describes the principles of environmental protection based on legal regulations and instruments of applying law in environmental protection and from the point of view of economy and management of environmental resources; enumerates general aspects of the economic activity of entities.	Student knows and describes methods for determining selected food contaminants and methods for detecting some food adulterations.	[SW4] test/exam - oral or written
	[OŚL3_W09] Describes the basic methods, techniques and tools that allow the rational use, shaping and restoration of natural resources.	Student knows and describes the basic methods of determining the main nutrients and food additives.	[SW4] test/exam - oral or written
	[OŚL3_W02] Characterises the relationships and relationships between various disciplines of natural sciences and science, uses knowledge of mathematics, physics, chemistry and biology in the description of basic concepts, concepts and principles in environmental protection.	Student understands the main goals and importance of food analysis. Student knows and recognizes the main nutrients in food and food additives.	[SW4] test/exam - oral or written

Subject contents

The topics of lecture:

Basic information about food analysis. Chemical composition of food, including the characteristics of the main nutrients, food additives and food contamination. Basic principles of collecting and sample preparation. Chemical, instrumental and sensory analysis techniques used to control and evaluate food quality. Methods for the determination of basic food ingredients and food additives. Methods of detecting adulteration and food contamination. Methods for the determination of selected carcinogenic and anti-carcinogenic compounds in food products. Examples of the use of chromatographic methods, spectrophotometric methods and mass spectrometry for food analysis. Preparation, statistical evaluation and interpretation of analysis results.

<table>
<tr><td>Prerequisites and co-requisites</td><td>lack

Convergent to: organic chemistry, analytical chemistry</td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>sum of points from the written exam covering the scope of material covered during lectures and laboratory exercises, including an assessment of the student's activity during the lecture (max. 10%)</td><td>51.0%</td><td>100.0%</td></tr>
</table>
</td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Kumirska J., Gołębiowski M., Paszkiewicz M., Bychowska A. Analiza żywności Wydawnictwo UG, Gdańsk 2010
Małgorzata Nogala-Kałucka (red.) Analiza żywności. Wybrane metody oznaczeń jakościowych i ilościowych składników żywności. Wydawnictwo Uniwersytetu Przyrodniczego w Poznaniu 2017
Autor: Piecyk Małgorzata (red.), Wołosiak Rafał (red.) Analiza i ocena jakości żywności. Wydawca: SGGW, Rok wydania: 2022.</td></tr>
<tr><td>Supplementary literature</td><td>Praca zbiorowa pod redakcją Klepacka M. Analiza żywności, Fundacja Rozwój SGGW, Warszawa 2005.
Praca zbiorowa pod redakcją Małecka M.
Wybrane metody analizy żywności, Wydawnictwo Akademii Ekonomicznej w Poznaniu, Poznań, 2003.
Praca zbiorowa pod redakcją Sikorski Z.E. Chemia Żywności, WNT, Warszawa, 2014.</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td></td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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