



Subject card

Subject name and code	Food Analysis, PG_00037510						
Field of study	Biotechnology						
Date of commencement of studies	October 2023		Academic year of realisation of subject		2026/2027		
Education level	first-cycle studies		Subject group		Optional subject group 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	4		Language of instruction		Polish		
Semester of study	7		ECTS credits		3.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Chemistry Technology and Biotechnology of Food -> Faculty of Chemistry -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Hanna Staroszczyk				
	Teachers		dr hab. inż. Hanna Staroszczyk dr inż. Agata Sommer dr inż. Izabela Koss-Mikołajczyk dr hab. inż. Dorota Martysiak-Żurowska				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	E-learning hours included: 0.0						
	eNauczanie source address: https://enauczanie.pg.edu.pl/2025/course/view.php?id=7585						
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		3.0		27.0	75
Subject objectives	To familiarize students with the principles of food law applicable in the world and in the European Union and analytical methods used to assess the quality of food, as well as to detect some food adulteration.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K02		understands the importance of the development of science and technology for the food economy development.		[SK2] Assessment of progress of work [SK5] Assessment of ability to solve problems that arise in practice		
	K6_W09		is familiar with methods for analyzing food components and possesses the knowledge necessary to interpret the obtained results.		[SW3] Assessment of knowledge contained in written work and projects		
	K6_U09		is able to conduct analyses of food components and interpret the obtained results.		[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools		

Subject contents	Course content – lecture		
	The role of food composition analysis in the control and optimization of technological processes. General principles of food law in the EU and Poland. The role of FAO/WHO. Overview of the nature and scope of methodological standards. Official food control in the EU. Classification and characteristics of methods used in food analysis. Principles of sample collection and preparation. Food adulteration and laboratory detection methods. Selected topics in food analysis: application of gas chromatography for the determination of aroma compounds, pesticides, fatty acids, cholesterol oxidation products, the degree and type of fat modification, and the adulteration of vegetable fats with animal fats and vice versa (using natural and modified fats). Application of thin-layer chromatography, high-performance liquid chromatography, and high performance size-exclusion chromatography for the determination of saccharides, products of thermo-oxidative fat degradation, protein hydrolysis products, and synthetic antioxidants. Application of isotope methods to determine water and saccharides added to fruit juices. Application of spectroscopic methods in the analysis of colorants, vitamins, and proteins, and in determining the authenticity of extra virgin oils. Use of DSC and NMR in the analysis of modified fats. Sensory analysis in food quality assessment. Physiology of the sensory organs involved in sensory analysis. Factors influencing sensory analysis results (testing conditions, laboratory methods used in sensory analysis: threshold determination, difference tests, multiple comparison method, ranking method, scaling method). Quality control methods: setting standards, scoring, establishing quality grades, quality stability testing, instrumental methods. Consumer assessment methods: survey methods, hedonic scale method. Statistical methods used in sensory analysis.		
	Course content – laboratory		
	Determination of phenolic compounds, pigments and minerals in food. Test the quality of selected food products by methods of chemical and sensory analysis.		
Prerequisites and co-requisites	Knowledge gained by studying the courses of Analytical Chemistry (background of instrumental methods) and Organic Chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Lecture: Tests	60.0%	70.0%
	Laboratory: quizzes during classes	60.0%	30.0%
Recommended reading	Basic literature	Actual standards and Commission Regulations (EC)	
	Supplementary literature	Baryłko-Pikielna N., Matuszewska I. Sensoryczne badania żywności. WN PTTŻ, Kraków 2014.	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Determination of food saccharides		
	Determination of food proteins		
	Methods for testing fat quality.		
	Analysis of water content in food.		
Practical activities within the subject	Not applicable		

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