

。 GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Food Analysis, PG_00037510								
Field of study	Biotechnology								
Date of commencement of studies	October 2022		Academic year of realisation of subject			2025/2026			
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 -> Wydziały Politechniki Gdańskiej								
Name and surname	Subject supervisor		dr hab. inż. Hanna Staroszczyk						
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Projec	ect Semina		SUM	
	Number of study hours	15.0	0.0	30.0	0.0		0.0	45	
	E-learning hours included: 0.0								
Learning activity and number of study hours	Learning activity	Participation i classes incluc plan	a didactic Participation in ed in study 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			
	к6_U09		The student knows the methods of analysing food components. He/ she has the knowledge necessary to interpret the results.			[SU2] Assessment of ability to analyse information [SU4] Assessment of ability to use methods and tools			
	K6_W09		The student knows the methods of analysing food components. He/ she has the knowledge necessary to interpret the results.			[SW3] Assessment of knowledge contained in written work and projects			
	K6_K02		The student can justify 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			

Subject contents	Lecture: The role of food component analysis in the control and improvement of technological processes and end product quality. An overview of food laws and regulations in the European Union and Poland. The role of the FAO/WHO Codex Alimentarius. The nature and the scope of application of methodological standards at the global and European level. Official food control systems in the European Union. Classification and description of food analysis methods. Food adulteration and detection methods. Selected problems in food analysis: sampling, the use of gas chromatography in identifying aromatic substances, pesticides, fatty acids, cholesterol oxidation products, the degree and type of fat modification, chocolate adulteration the use of animal fat instead of vegetable fat, butter adulteration the use of natural and modified vegetable fat instead of animal fat. The use of thin layer chromatography, high-performance liquid chromatography and high-performance size-exclusion chromatography for determining sugars, the products of thermo-oxidatively altered fats, protein hydrolysis products, synthetic antioxidants. The use of isotopic methods for determining water and sugars added to fruit juice. The use of spectroscopic methods for analyzing food dyes, vitamins, and proteins, and for determining the authenticity of extra virgin oils. The use of differential scanning calorimetry and nuclear magnetic resonance in modified fat analyses. Sensory analyses in the evaluation of food quality: rudimentary knowledge. Physiology of the senses used in sensory analyses. Factors affecting method. Quality control methods: determination of standards, point grading, determination of quality classes, analyzing the stability of quality attributes, instrumental methods. Consumer evaluation methods: surveys, hedonic scale method. Statistical methods applied in sensory analyses.						
Prerequisites and co-requisites	Knowledge gained by studying the courses of Analytical Chemistry (background of instrumental methods) and Organic Chemistry						
Assessment methods	Subject passing criteria	Passing threshold	Percentage of the final grade				
and criteria	Laboratory exercises	60.0%	30.0%				
	Tests from lectures	60.0%	70.0%				
Recommended reading	Basic literature Actual standards and Commission Regulations (EC)						
	Supplementary literature	Baryłko-Pikielna N., Matuszewska I. Sensoryczne badania zywnosci. 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.						
Work placement	Not applicable						

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