



Subject card

Subject name and code	Food Chemistry, PG_00054753						
Field of study	Biotechnology						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
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	3		Language of instruction		Polish		
Semester of study	6		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						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	15.0	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		3.0		27.0	75
Subject objectives	To familiarize students with the chemical properties of the main food components, proteins, polysaccharides and lipids, as well as water, minerals and vitamins.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	K6_K02		The student is able to justify the importance of the development of science and technology for the development of the food economy.		[SK5] Assessment of ability to solve problems that arise in practice		
	K6_W03		The student knows the chemical structure, properties and role of food components in human nutrition.		[SW1] Assessment of factual knowledge		
Subject contents	Course content – lecture Lecture: Occurrence and role of proteins in food. Enzymatic changes and chemical reactions of proteins in food. Proteins: muscle, milk, chicken egg, cereals, oilseeds and legumes. Non-protein nitrogenous compounds. Polysaccharides: occurrence, physicochemical and sensory properties. Natural and synthetic sweeteners. Lipids: general classification, nomenclature and structure. Physicochemical and sensory properties. Lipid metabolism as a result of the action of enzymes and physical and chemical factors. Reactions of lipids with other food ingredients. Reactions of fatty acids and acylglycerols, including lipid hydrolysis, esterification, transesterification, oxidation and hydrogenation. Division of natural fats and their composition. Polymorphism and crystal structure of fats. Functional properties and nutritional aspects of fats. Vitamins: classification, chemical structure, nomenclature, chemical, physical properties and biological functions, occurrence in nature and their content in food products. Seminar: Presentation by students of selected issues extending the scope of lectures.						
Prerequisites and co-requisites	The knowledge on <i>Organic chemistry</i> .						

Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	presentation of the chosen topic	60.0%	30.0%
	midterm colloquium	60.0%	70.0%
Recommended reading	Basic literature	Lecture: Z.E. Sikorski, H. Staroszczyk (eds). 2017. Food Chemistry, volume 1 Main food components. Warsaw, PWN. Seminar: Articles in scientific journals, books and other studies related to the topic of the selected presentation.	
	Supplementary literature	Z.E. Sikorski (ed). 2001. Chemical and Functional Properties of Food Proteins. Lancaster-Basel, Technomic Publishing Co., Inc. H.D. Belitz, W. Grosch, P. Schieberle. 2001. Lehrbuch der Lebensmittelchemie. Aufl. 5. Berlin, Springer Verlag. H. Staroszczyk, Z.E. Sikorski (ed). 2023. Chemical and Functional Properties of Food Components. 4th editions. Boca Raton, FL, CRC Press	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Interactions of calcium ions with proteins in food.Chemical modifications of starch.Hydrocarbons in fats and their biological significance.		
Practical activites within the subject	Not applicable		

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