



Subject card

Subject name and code	Food Chemistry, PG_00054753						
Field of study	Biotechnology						
Date of commencement of studies	October 2021	Academic year of realisation of subject			2023/2024		
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 Biochemistry of Food -> Faculty of Chemistry						
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. inż. Hanna Staroszczyk					
	Teachers	dr hab. inż. Hanna Staroszczyk dr hab. inż. Dorota Martysiak-Żurowska					
Lesson types and methods of instruction	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_W03	The student knows the chemical structure, properties and role of food components in human nutrition.			[SW1] Assessment of factual knowledge		
	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		
Subject contents	<p>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.</p>						
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
	midterm colloquium	60.0%	70.0%
	presentation of the chosen topic	60.0%	30.0%
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	Adresy na platformie eNauczenie: Chemia żywności 2023/2024 sem. letni - Moodle ID: 35073 https://enauczenie.pg.edu.pl/moodle/course/view.php?id=35073	
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.		
Work placement	Not applicable		