GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Food Chemistry, PG_00037432		
Field of study	Biotechnology		
Date of commencement of studies	October 2020	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	4	Language of instruction	Polish
Semester of study	7	ECTS credits	4.0
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		

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

Additional information:
Hybrid teaching.

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	10.0	45.0	100

Subject objectives

To familiarize students with the knowledge about chemical and functional properties of food ingredients, interactions taking place between them during food processing and storage and the influence of these processes on the quality of food products.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U02		
K6_W03		

Subject contents

Lecture: Occurrence and role of proteins in food. Enzymatic changes and chemical reactions of proteins in food. Proteins: muscle, milk, chicken eggs, cereals and oilseeds and pulses. Non-protein nitrogen compounds. Polysaccharides: occurrence and physicochemical and sensory properties. Transformations of polysaccharides in food as a result of enzymes and physical and chemical factors. Reactions of polysaccharides with other food ingredients.Functional and rheological properties of polysaccharides in food.Natural and synthetic sweeteners. Lipids: general classification, nomenclature and structure. Physicochemical and sensory properties. Transformations of lipids due to enzymes and physical and chemical factors. Reactions of lipids with other food ingredients. Reactions of fatty acids and acyloglycerols, including lipid hydrolysis, esterification, pre-esterification, 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. Transformations of vitamins during their processing and storage.
Seminar: Preparation and presentation by the students selected issues extending the scope of the lecture material.

Prerequisites and co-requisites

The knowledge on *Organic chemistry*.

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. Z.E. Sikorski (ed). 2002. Chemical and Functional Properties of Food Components. 2nd editions. Boca Raton, FL, CRC Press
	eResources addresses	
Example issues/ example questions/ tasks being completed	The interaction of calcium ions with proteins in food. Hydrocarbons in fats and their biological significance. Interactions of polysaccharides and proteins.	
Work placement	Not applicable	