

Subject card

Subject name and code	Food additives, PG_00082061						
Field of study	Chemistry						
Date of commencement of studies	October 2026		Academic year of realisation of subject			2028/2029	
Education level	Bachelor's studies		Subject group			Obligatory subject group in the field of study 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	5		ECTS credits			1.0	
Learning profile	academic		Assessment form			credit	
Conducting unit	Laboratory of Biological Inorganic Chemistry -> Department of General and Inorganic Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Joanna Makowska				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	0.0	0.0	0.0	15
	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	15		2.0		8.0	25
Subject objectives	• Providing students with the latest specialist knowledge in the field of EU law regarding additives, processing aids and the conditions of their use; • To familiarize students with the division of food additives and the impact of these additives on the human body. • To familiarize students with the basic methods of obtaining GMOs and to explain the role of genetically modified organisms in the human economy.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_W03] Explains the relationship between the structure of matter and its observed properties.	Student correctly argues his/her conclusions in the field of chemistry in speech and writing, interprets and analyzes related information with the basic chemical laws concerning the structure of matter.	[SW1] oral statement/conversation/discussion
	[CHEML3_U03] Selects the appropriate equipment and laboratory apparatus for conducting uncomplicated chemical experiments.	- Student is very careful when using laboratory equipment and working with chemical reagents. - Student is able to classify equipment based on its properties and applications. - Student is able to optimize the choice of equipment, taking into account the parameters of the experiment. - Student knows how to predict the results of experiments based on input data	[SU6] demonstration of practical skills
	[CHEML3_W05] Has basic knowledge of the chemical specialisation studied.	- Students correctly argue their conclusions in chemistry, interpret and analyze related information with basic chemical and economic laws. - By reading scientific texts, student learns to analyze and synthesize information, extract key concepts and understand complex issues.	[SW1] oral statement/conversation/discussion
	[CHEML3_K03] Establishes priorities in the right way for the implementation of tasks specified by herself/himself and/or by others.	- Student is critical in expressing opinions and remains open to the opinion of co-discussants - Student can define a clear goal or task that he wants to achieve. - Student identifies the stages, operations, and devices involved in the experiment	[SK2] presentation/project/paper/report
	[CHEML3_W04] Characterises the basic methods of chemical compound analysis.	- Student can briefly characterize the assumptions of various analytical techniques - Student can describe the principles of operation of these techniques, their applications and limitations. - Student can discuss sample preparation procedures and interpretation of results.	[SW4] test/exam - oral or written
	[CHEML3_U09] Is able to learn independently.	Student independently uses literature databases and critically selects source texts on a given topic - the student reads with comprehension, analyzes and evaluates simple scientific texts	[SU3] text preparation/written work
	[CHEML3_K02] Works individually demonstrating initiative and independence of activity and cooperates in a team fulfilling various roles in it.	- Student prepares written assignments in various fields of chemistry using the acquired knowledge - Student is aware of the need for critical analysis of his/her own work - Student appreciates the need to be able to work in a team in accordance with his/her role in it (group leader/group member)	[SK2] presentation/project/paper/report
	[CHEML3_U08] Presents in an understandable way the basic facts about chemistry using a scientific language typical of chemical sciences.	- Student prepares written or oral studies in various fields of chemistry, using the acquired knowledge and skills as well as various sources of scientific information.	[SU1] oral statement/conversation/discussion

Subject contents	A. Issues of the lecture: Basic legal regulations concerning substances added to food; Division of food additives in commercial food products; Possibilities and controversies in the use of chemical compounds in food; Food enrichment purposes; GMO- definitions, legal regulations and goals. GMO food. Labeling of GMO food. Activities of non-governmental organizations in the field of modified food.		
Prerequisites and co-requisites	• Participation and obtaining credit in the following subjects: 1. Organic chemistry 2. Inorganic chemistry 3. Basics of human nutrition • Genetics (from the high school program), • biochemistry (from the high school program), • microbiology (from the high school program)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	a positive note of the written test consisting of 15-20 test questions and open questions covering the issues listed in the program content of the lecture	51.0%	100.0%
Recommended reading	Basic literature	• Maciej Taczanowski - Food law in terms of Poland's membership in the European Union 2009 • Zdzisław Sikorski - Food Chemistry, Volume 3, Scientific and Technical Publishing House, December 2009 • Jan Gawęcki, Tomasz Roszkowski - Human nutrition and public health vol. 3 Ed. PWN, 2012 • Wawrzyniec Kofta - Basics of genetic engineering, 1999	
	Supplementary literature	Selected scientific publications in the field of the discussed subject: 1. Márcio Carocho i inni, <i>Adding Molecules to Food, Pros and Cons: A Review on Synthetic and Natural Food Additives</i> , Comprehensive Reviews in Food Science and Food Safety, 13 (4), 2014, s. 377399 2. A. Witczak, Z. Sikorski "Harmful substances in food. Origin, action, health hazards." PWN Scientific Publishing House, 2020	
	eResources addresses		
Example issues/ example questions/ tasks being completed	- system of classification of substances added to food. - issues and advisability of using chemical and natural compounds in food. - main legal regulations regarding additives in food. - basic threats and benefits for the human body resulting from the presence of additional substances in food. - in vitro recombinant DNA methods used to modify organisms		
Work placement	Not applicable		

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