

Subject card

Subject name and code	Toxins in food and risk assessment, PG_00165803						
Field of study	Chemistry						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
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	2		Language of instruction		Polish		
Semester of study	3		ECTS credits		2.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Environmental Analysis -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Łukasz Haliński				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	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	30		5.0		15.0	50
Subject objectives	1. To introduce students to natural and anthropogenic toxins present in food. 2 To provide students with the basic information on the toxicity of compounds present in food, their metabolism and impact on long-term health. 3. To introduce students to the basics of legislation in the European Union regarding toxic compounds in food. 4. To acquaint students with the basics of risk assessment for substances present in food. 5. To develop the ability to perform a basic risk assessment on their own.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_W05] Has basic knowledge of the chemical specialisation studied.	The student has knowledge of the effects of chemical compounds present in food on human health.	[SW4] test/exam - oral or written
	[CHEML3_U01] Identifies, analyses and solves problems in the field of broadly understood chemistry on the basis of the acquired knowledge.	The student is able to identify the main risks to humans associated with the presence of toxic compounds in food, and proposes ways to reduce the risk.	[SU4] test/exam - oral or written
	[CHEML3_U08] Presents in an understandable way the basic facts about chemistry using a scientific language typical of chemical sciences.	The student is able to evaluate the impact of compounds detected in food on human health.	[SU4] test/exam - oral or written
	[CHEML3_K07] Appreciates the need for understandable presentation of selected chemical issues to the public.	The student is able to describe in accessible language the effects of selected toxins on human health.	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
	[CHEML3_W03] Explains the relationship between the structure of matter and its observed properties.	The student determines from the structure and properties of the substance its potential effects on human health.	[SW4] test/exam - oral or written
	[CHEML3_K06] Raises her/his professional and personal competences by using information provided in various sources.	The student demonstrates the ability to independently find the necessary data in scientific and popular literature.	[SK1] oral statement/conversation/discussion
[CHEML3_K01] Identifies the level of her/his own knowledge and skills and the need for continuous learning and personal development.	The student understands the need for further education in the chemistry and toxicology of compounds present in food.	[SK4] test/exam - oral or written	
Subject contents	Classification of toxins present in food. Natural and anthropogenic toxins. Basics of toxicology in relation to substances present in food. Natural toxins: plant, fungal, bacterial. Anthropogenic toxins: pesticides, heavy metals, substances resulting from food processing, veterinary drugs. EU legislation in relation to toxins in food. Basics of risk assessment. Experimental and computational methods in risk assessment.		
Prerequisites and co-requisites	Completed or ongoing courses: general biology, general chemistry, organic chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Written exam (120 min)	51.0%	100.0%
Recommended reading	Basic literature	Stenersen, J. Chemical Pesticides: Mode of Action and Toxicology, CRC Press, Boca Raton, 2004. Jurowski, K., Piekoszewski, W. Toksykologia tom 1-2, PWN, Warszawa, 2020.	
	Supplementary literature	C.J. van Leeuwen, J.L.M. Hermens. Risk Assessment of Chemicals: An Introduction.Springer, 2007.	
	eResources addresses		
	Example issues/ example questions/ tasks being completed		
Work placement	Not applicable		

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