

Subject card

Subject name and code	Selected groups of natural compounds, PG_00016005						
Field of study	Chemical Business						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Optional subject group		
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		1.0		
Learning profile	academic		Assessment form				
Conducting unit	Laboratory of Bioorganic Chemistry -> Department of Molecular Biochemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Anna Łęgowska				
	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	to acquaint students with all issues mentioned in the lecture contents						
	to introduce students to the basic groups of natural organic compounds, their structure and biological activity						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BCHINŻ_U01] On the basis of the acquired knowledge, identifies, analyses and solves engineering tasks and problems in broadly understood chemistry.	Designing experiments for separating biomacromolecules Understanding the influence of natural compounds on processes occurring in living organisms Independent search of information in literature	[SU4] test/exam - oral or written
	[BCHINŻ_W04] Describes the role of experiment and computer simulation in the design process of engineering issues.	Classifying lipids and having knowledge of structures which they create in water solutions Being acquainted with nature of the transport of various compounds through biological membranes Defining and presenting chemical structures of alkaloids, steroids, describing the biological activity of natural compounds Understanding the influence of natural compounds on processes occurring in living organisms Explaining the concept of peptide antibiotics Providing examples of the biosynthesis of short peptides containing non-proteinogenic amino acids	[SW4] test/exam - oral or written
	[BCHINŻ_U08] Uses the chemical nomenclature and engineering terminology properly.	Using chemical terminology necessary for presentation of course content Predicting the physicochemical and biological properties of organic compounds based on their chemical formulas or spatial structures	[SU4] test/exam - oral or written
	[BCHINŻ_K01] Identifies the level of her/his own knowledge and skills as well as the need to update engineering knowledge, continuous professional training and personal development.	Being aware of the need for continuous self-education, Showing critical thinking when accepting information, especially easily available in mass media Understanding the need for systematic learning	[SK4] test/exam - oral or written
	[BCHINŻ_W02] Enumerates basic laws and theories in chemistry, physics and mathematics necessary to formulate and solve simple engineering tasks.	Understanding chemical properties and presenting chemical structures of molecules forming macromolecules Identifying and recognizing chemical bonds and interactions present in macromolecules Describing biological activity of natural compounds	[SW4] test/exam - oral or written
Subject contents	Structure and biological functions of polypeptides and proteins. Chemical structure and functions of monosaccharides, disaccharides, and polysaccharides. Lipids division, physicochemical properties. Lipid bilayer composition and types of transport across the bilayer. Peptide antibiotics. Structures and functions of selected steroids. Alkaloids structural elements and biological activity. Natural toxins		
Prerequisites and co-requisites	basic knowledge of organic chemistry (bachelor degree)		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	written exam, 4-5 questions, duration 1,5 hours	51.0%	100.0%
Recommended reading	Basic literature	J.M. Berg, Stryer L., Tymoczko J. L., BiochemiaA. Kołodziejczyk Naturalne związki organiczne	

	Supplementary literature	Z. Siemion Biostereochemia academic textbooks for organic chemistry
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Explain what are the functions of bile acids in the human body and draw the structural formula of one of them List and characterize the hormones of the pituitary gland and hypothalamus	
Work placement	Not applicable	

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