

Subject card

Subject name and code	Biochemistry, PG_00081919						
Field of study	Chemistry						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2026/2027		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study 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	4		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Laboratory of Bioorganic Chemistry -> Department of Molecular Biochemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		prof. dr hab. Krzysztof Rolka				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	15.0	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 introduce students to the basic endogenous organic compounds, their structure and functions;						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_W02] Describes the properties of elements and the most important chemical compounds, enumerates the methods of their preparation and methods of analysis.	Characterizes basic analytical methods of endogenous, organic compounds.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[CHEML3_W01] Enumerates basic laws and theories in chemistry, physics, mathematics and biology.	Defines and demonstrates chemical structure of basic groups of bio- and macromolecules. Explains their importance for the body functioning. Understands influence of diet on physical condition of the body.	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion
	[CHEML3_K06] Raises her/his professional and personal competences by using information provided in various sources.	Understands the need of continuous education. Appreciates the need of ability to team work according to assigned role (team leader/team member). Is aware of the need of critical analysis of own work. Is aware of the necessity of fair and reliable work.	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
	[CHEML3_U09] Is able to learn independently.	Predicts physicochemical and biological properties of organic compounds based on their chemical formulas.	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written
	[CHEML3_U03] Selects the appropriate equipment and laboratory apparatus for conducting uncomplicated chemical experiments.	Predicts physicochemical and biological properties of organic compounds based on their chemical formulas. Uses the basic analytical techniques applied for the analysis of endogenous organic compounds. Designs and performs simple biochemical experiments, using appropriate laboratory equipment.	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written
	[CHEML3_K03] Establishes priorities in the right way for the implementation of tasks specified by herself/himself and/or by others.	Is aware of the need of critical analysis of own work. Is aware of the necessity of fair and reliable work.	[SK1] oral statement/conversation/discussion [SK4] test/exam - oral or written
	[CHEML3_U07] Prepares documented elaboration on a specific problem in the field of selected chemical and physical issues.	Uses chemical terminology necessary to present (both in oral and written form) the content presented in the course. Predicts the physicochemical properties of biomolecules.	[SU1] oral statement/conversation/discussion [SU4] test/exam - oral or written
Subject contents	Chemical structure, physicochemical properties and biological functions of: proteins, peptides, nucleic acids, lipids, phospholipids, mono- and polysaccharides		
Prerequisites and co-requisites	Organic chemistry (bachelor level), fundamentals of organic chemistry.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	passing two written tests covering the content of the classes and activity in classes	51.0%	100.0%
Recommended reading	Basic literature	J. M. Berg, J. L. Tymoczko, L. Stryer, Biochemia, PWN, Warszawa 2009 and and subsequent editions	
	Supplementary literature	other academic textbooks for biochemistry and bioorganic chemistry.	
	eResources addresses		

Example issues/ example questions/ tasks being completed	Write the structural formulas of threonine and determine the absolute and relative configuration of the carbon atoms of the isomer present in the protein. Discuss the canonical secondary structures of proteins and the interactions that stabilize them. Using chemical reactions, present the mechanism of lactose hydrolysis in an acidic conditions. Discuss and give examples of passive transport.
Work placement	Not applicable

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