University of Gdańsk

Subject card

Subject name and code	Biochemistry, PG_00081919		
Field of study	Chemistry		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	Obligatory subject group 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 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	dr hab. Anna Łęgowska	

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_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
[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_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_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_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_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_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

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, Warszawa2009 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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