

Subject card

Subject name and code	Biochemistry, PG_00081920						
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							
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	0.0	15.0	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 teach students how to perform biochemical experiments using delivered instructions.						
	To develop the ability to critically asses and interpret obtained experimental results and analysis of scientific sources.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[CHEML3_U03] Selects the appropriate equipment and laboratory apparatus for conducting uncomplicated chemical experiments.	Designs and performs simple biochemical experiments, using appropriate laboratory equipment.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task [SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[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 critical analysis of one's own work. Is aware of the necessity honest and reliable work.	[SK3] text preparation/written work [SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[CHEML3_W02] Describes the properties of elements and the most important chemical compounds, enumerates the methods of their preparation and methods of analysis.	Defines and demonstrates chemical structure of basic groups of bio- and macromolecules. Describes and illustrates main metabolic pathways using chemical reactions, explains their importance for the body functioning. Characterizes basic analytical methods of endogenous, organic compounds. Characterizes methods of determination of enzymatic activity of selected proteases. Recognizes basic laboratory equipment.	[SW2] presentation/project/paper/report [SW5] implementation of a problem task
	[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;	[SK2] presentation/project/paper/report [SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[CHEML3_U09] Is able to learn independently.	Shows cautious criticism when acquiring knowledge, especially these coming from mass media.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[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. Uses the basic analytical techniques applied for the analysis of endogenous organic compounds; Designs and performs simple biochemical experiments, using appropriate laboratory equipment. Analyzes the results of performed experiments, draws conclusions about the correctness of their course.	[SU2] presentation/project/paper/report [SU5] implementation of a problem task [SU8] observation of student's independent or team work
	[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.	[SW2] presentation/project/paper/report
Subject contents	Performing three exercises/experiments covering the following topics: activity marking enzymatic analysis of serine proteinases and their inhibitors and chromogenic substrates, determination of kinetic parameters of a selected chromogenic substrate, use of molecular filtration chromatography for protein analysis, chromatographic analysis of phospholipids, testing of the susceptibility of polysaccharides to hydrolysis under low pH conditions.		

Prerequisites and co-requisites	organic chemistry, basic knowledge of organic chemistry, skills work in a chemical laboratory, knowledge of basic laboratory glassware, learning the principles work in a biochemical laboratory		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	three entrance tests, assessment of student work and positive assessment of laboratory reports	51.0%	100.0%
Recommended reading	Basic literature	Instructions for laboratory exercises prepared by the Department's employees are available in electronic form on the Faculty's website	
	Supplementary literature	J. M. Berg, J. L. Tymoczko, L. Stryer, Biochemia, PWN, Warszawa 2009 and subsequent editions, also other academic textbooks for biochemistry	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Discuss the types of column liquid chromatography used in the analysis of biomolecules. Describe the method of determining trypsin activity used during classes.		
Work placement	Not applicable		

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