

Subject card

Subject name and code	Laboratory analysis of biomolecules, PG_00080756						
Field of study	Chemical Business						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2028/2029		
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		credit		
Conducting unit	Laboratory of Medical Chemistry -> Department of Biomedical Chemistry -> Faculty of Chemistry -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Aneta Szymańska				
	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						
	Additional information:						
	lecture with multimedia presentation						
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 familiarize students with: - the methods and techniques used in chemical laboratories for the analysis of biomolecules - the theoretical basis of selected instrumental techniques used in analytical laboratories - the problems of construction and principles of operation of selected analytical apparatus used in laboratories for the analysis of biomolecules To prepare students to: - independently plan the course of analysis of a group of biomolecules using laboratory methods and techniques - interpret and critically analyze the results of the analysis of the studied group of biomolecules						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BCHINŻ_K03] Independently sets or implements a set action plan specifying priorities for its implementation; critically assesses its progress.	student independently plans and/or performs specific tasks, sets their priorities and takes appropriate actions leading to the implementation of the task	[SK5] implementation of a problem task [SK8] observation of student's independent or team work
	[BCHINŻ_U02] Uses basic methods, techniques and tools in formulating and solving engineering tasks in the field of chemistry.	student classifies laboratory techniques in the context of their usefulness in the characterization and analysis of particular groups of biomolecules, selects a method of analysis for the biomolecule under study or the problem being solved and plans the method of analysis and formulates conclusions based on its results	[SU1] oral statement/conversation/discussion [SU5] implementation of a problem task
	[BCHINŻ_W07] Describes the construction and operating principles of basic scientific, technological and control-measuring apparatus.	student describes the construction and principles of operation of scientific, technological, and measurement apparatuses used in the analysis of biomolecules	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report
	[BCHINŻ_U03] Plans, selects the appropriate research and measuring equipment and performs simple chemical experiments; analyses the results and draws conclusions based on them.	student selects the appropriate equipment and laboratory apparatuses for carrying out uncomplicated chemical experiments, performs them, and then analyzes the obtained results and draws conclusions	[SU6] demonstration of practical skills [SU8] observation of student's independent or team work
	[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.	student performs a critical self-assessment during the course of the educational process, identifies his/her strengths and weaknesses and shows initiative in the direction of completing the knowledge	[SK1] oral statement/conversation/discussion [SK8] observation of student's independent or team work
	[BCHINŻ_W02] Enumerates basic laws and theories in chemistry, physics and mathematics necessary to formulate and solve simple engineering tasks.	student presents the theory and fundamentals of chemical reactions applicable to the analysis of biomolecules, based on in the basic theories of chemistry	[SW4] test/exam - oral or written [SW1] oral statement/conversation/discussion [SW2] presentation/project/paper/report
Subject contents	Problems of the lecture: - Physicochemical characterization of biomolecules in the context of the usefulness of individual characteristics for the analysis of molecules by means of modern laboratory techniques. - Presentation of the theoretical basis of selected instrumental techniques - Presentation of the principles of selection of the analytical technique and method for the analytical problem to be solved (type of biomolecule, qualitative or quantitative characteristics of the biomolecule) - Presentation of the principles of critical analysis of the obtained experimental results.		
Prerequisites and co-requisites	completed courses: "Analytical Chemistry", "Organic Chemistry", "Biochemistry".		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	exam	51.0%	100.0%
Recommended reading	Basic literature	1. T. Rutherford: Principles of Analytical Biochemistry. Alexis Press LLC, 2019. 2. M. Basha: Analytical Techniques in Biochemistry. Niemcy: Humana Press, 2019	
	Supplementary literature	monographic materials provided by the lecturer	
	eResources addresses		
Example issues/ example questions/ tasks being completed			
Work placement	Not applicable		

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