

Subject card

Subject name and code	Biochemical basis of the genes' function, PG_00207472						
Field of study	Biology						
Date of commencement of studies	October 2026		Academic year of realisation of subject			2028/2029	
Education level	Bachelor's studies		Subject group			Obligatory subject group in the field of study 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 Microbial Biochemistry -> Department of General and Medical Biochemistry -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Dorota Kuczyńska-Wiśnik				
	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		1.0		9.0	25
Subject objectives	Learning about the processes that proteins undergo after they are synthesized in the cell (modifications, transport, formation of the correct spatial structure) and modern methods of studying the structure and function of proteins; acquiring the ability to design experiments using known techniques and interpretation of results, as well as using publicly available databases of sequences and structures.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[BIOLL3_W05] has advanced knowledge of experimental methods, laboratory and field techniques, and the principles of planning and conducting biological research		
	[BIOLL3_W02] knows and understands at an advanced level the structure and properties of biological macromolecules, mechanisms of metabolism, flow of genetic information, sources of variation in organisms; rules of inheritance	describes the biochemical processes that are the basis for the functioning of organisms and indicates their relationship with other biological sciences	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion
	[BIOLL3_U02] is able to use statistical methods, IT tools and data analysis techniques to describe biological phenomena, as well as synthesize information from various sources and formulate correct conclusions based on them		
	[BIOLL3_K05] is ready to perform professional roles responsibly, both individually and in teams, including organizing the work of small teams and taking joint responsibility for the implementation of assigned tasks and the results achieved.		
	[BIOLL3_K02] is ready to take care for her/his own safety and that of others, identifying threats and taking appropriate action, as well as use verified equipment and materials responsibly, ensuring their proper use		
Subject contents	During the auditorium exercises, contemporary aspects of proteomic research will be learned and discussed; studies of protein structure and function; protein identification and study of post-translational modifications. Determination of protein structure by crystallography and nuclear magnetic resonance (NMR). Study of interactions between proteins.		
Prerequisites and co-requisites	Knowledge of the structure and properties of basic types of biological macromolecules, molecular mechanisms of the flow of genetic information and the regulation of its expression. Courses taken: Biochemistry, Molecular biology with biotechnology or Organic chemistry and biochemistry, molecular biology and genetics		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	solving problem tasks during classes	51.0%	30.0%
	term work	51.0%	20.0%
	test	51.0%	50.0%
Recommended reading	Basic literature	Berg J. M., Tymoczko J. L., Stryer L. (2018) Biochemia. Wydawnictwo Naukowe PWN. Warszawa	
		Kraj A., Drabik A., Silbering J. (2010) Proteomika i metabolomika. WUW. Warszawa.	
		Articles in specialized magazines	
	Supplementary literature	Articles in specialized magazines	
	eResources addresses		
Example issues/ example questions/ tasks being completed	The use of antibodies in molecular biology and diagnostics; Complete the table by entering the similarities and differences between the indicated methods for determining the tertiary structure of proteins		
Work placement	Not applicable		

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