

Subject card

Subject name and code	Biochemical basis of the genes' function, PG_00207473						
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		exam		
Conducting unit	Laboratory of Protein and Nucleic Acid Biochemistry -> Department of General and Medical Biochemistry -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. Dorota Żurawa-Janicka				
	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						
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	Understanding the processes that proteins undergo after they are synthesized in the cell (modifications, transport, formation of the correct spatial structure)						

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 (B_W02)	[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	Posttranslational modification of proteins (proteolytic cleavage, phosphorylation, glycosylation, methylation, acetylation) and related changes in structure and functions (modulation of enzyme activity, influence on gene expression). Regulation of biochemical processes and their interconnections. Defects in metabolic pathways, their impact on the functioning of the body and human health (selected diseases related to congenital errors in metabolism). Biochemical basis of civilization diseases of the 21st century (diabetes, atherosclerosis, lipid disorders, obesity).		
Prerequisites and co-requisites	Completion of courses: Biochemistry, Molecular biology with biotechnology or Organic chemistry and biochemistry, molecular biology and genetics. 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.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	final test exam	51.0%	100.0%
Recommended reading	Basic literature	Lecture prepared on the basis of articles from scientific journals and: Lieberman & Peet. Mark's Basic Biochemistry: A Clinical Approach. 6th Ed. Wolters Kluwer. 2022. Janson & Tischler. The Big Picture: Medical Biochemistry. The McGraw-Hill Companies, Inc. 2012. Rodwell et al. Harper's Illustrated Biochemistry. 30th Ed. McGraw-Hill Education. 2015. Literature for self-learning: Ferrier. Biochemia (Lippincott Illustrated Reviews. 7th Ed.). wyd. pol. pod red. D. Chlubek. Edra Urban & Partner. 2017.	
	Supplementary literature	Review articles form scientific journals	
	eResources addresses		
	Example issues/ example questions/ tasks being completed		
Work placement	Not applicable		

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