University of Gdańsk

Subject card

Subject name and code	Biochemical basis of the genes' function, PG_00079843		
Field of study	Biology		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
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	
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	0.0	0.0	15

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_K06	is responsible for his/her own work and respects the work of others	[SK1] oral statement/conversation/ discussion [SK8] observation of student's independent or team work
BIOLL3_K03	is able to organize the work of a small team and demonstrates the ability to work effectively in a team	[SK8] observation of student's independent or team work
[BIOLL3_U05] the graduate is able to synthesise data from various sources and draw appropriate conclusions on this basis	synthesizes data from various sources and draws appropriate conclusions on this basis	[SU1] oral statement/conversation/ discussion [SU5] implementation of a problem task
[BIOLL3_W14] the graduate knows the theoretical basis of experimental methods and the most important techniques of the biological sciences	explains the theoretical basis of experimental methods and lists the most important techniques used to study the structure and function of proteins and the interactions between proteins	[SW1] oral statement/ conversation/discussion [SW5] implementation of a problem task
[BIOLL3_W02] the graduate has an advanced understanding of the structure and properties of biological macromolecules, the molecular mechanisms of the basal metabolic pathways and genetic information flow and the sources of variation in organisms; the rules of inheritance	describes the biochemical processes that underlie the functioning of organisms and indicates their relationship with other biological sciences	[SW4] test/exam - oral or written [SW1] oral statement/ conversation/discussion

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%
test	51.0%	50.0%
term work	51.0%	20.0%

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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