University of Gdańsk

Subject card

Subject name and code	Functioning of organisms at the molecular level, PG_00048687		
Field of study	Molekularne podstawy funkcjonowania organizmów (Ćw. audytoryjne)		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2024/2025
Education level	Bachelor's studies	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	5	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit			
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Anna Herman-Antosiewicz	
	Teachers	prof. dr hab. Anna Herman-Antosiewicz	

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	Knowledge and understanding of processes related to the variability of genetic material and its consequences. Ability to select methods and techniques for examining the impact of genetic and epigenetic changes on cell biology and interpreting the results. Ability to give oral presentations and independently search for information

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOLL3_W16] the graduate knows and understands the relationship between the achievements of the selected field of science and discipline of natural sciences and the possibilities of their use in socio-economic life, taking into account the sustainable use of biodiversity	explains the connections between the achievements of molecular biology and the possibilities of its use in socio-economic life	[SW2] prezentacja/projekt/referat/ raport
[BIOLL3_W14] the graduate knows the theoretical basis of experimental methods and the most important techniques of biological sciences	explains the theoretical basis of experimental methods, lists the most important techniques for examining the genetic material and the response of cells to its changes	[SW4] test/egzamin - ustny lub pisemny [SW2] prezentacja/projekt/referat/ raport
[BIOLL3_W10] the graduate knows and understands to an advanced degree the development and current state of knowledge and the latest trends in biology, as well as their relationship with other natural disciplines	knows the molecular mechanisms of the variability of genetic information and its impact on the functioning of cells and entire organisms	[SW4] test/egzamin - ustny lub pisemny [SW2] prezentacja/projekt/referat/ raport
[BIOLL3_U10] the graduate is able to prepare oral speeches in Polish and foreign language concerning specific issues in biology	has the ability to give oral presentations in Polish on specific issues related to the molecular basis of the functioning of organisms	[SU1] wypowiedź ustna/rozmowa/ dyskusja [SU2] prezentacja/projekt/referat/ raport
[BIOLL3_U06] the graduate can read with understanding simple scientific biological texts in Polish and simple texts in English	reads and understands scientific texts in Polish and simple texts in English	[SU2] prezentacja/projekt/referat/ raport
[BIOLL3_U05] the graduate is able to synthesise data from a variety of sources and draw appropriate conclusions on this basis	reads and understands scientific texts in Polish and simple texts in English	[SU2] prezentacja/projekt/referat/ raport
[BIOLL3_K03] the graduate is ready to organize the work of a small team and to work effectively in a team environment	can organize the work of a small team and demonstrates the ability to work effectively in a team	[SK2] prezentacja/projekt/referat/ raport

Subject contents

The following aspects are learned and discussed: principles of eukaryotic cell culture (passaging, counting, viability/metabolic activity tests), methods of examining signaling pathways in cells, methods of examining the mutagenic potential of physical and chemical factors, the importance and methods of examining the degree of DNA methylation, biology and the importance of stem cells, controversies related to the genetic modification of organisms.

Prerequisites and co-requisites

Basic knowledge of the biology of nucleic acids and eukaryotic cells, understanding the relationship between genotype and phenotype.

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Passing based on grades from presentations, active participation in discussions and grades from colloquiums	51.0%	100.0%

Recommended reading

Basic literature	Lewin B. Genes VIII. Oxford University Press, USA, 2004; Lodish H. i wsp. Molecular Cell Biology. W.H.Freeman &Co., 2016, New York; Węgleński P. Genetyka molekularna, PWN, Warszawa, 2008; Alberts i wsp. Podstawy biologii komórki, PWN, Warszawa, 2009-2016.
Supplementary literature	Materials indicated by the lecturer.
eResources addresses	

Example issues/ example questions/ tasks being completed

Work placement

Not applicable