University of Gdańsk

Subject card

Subject name and code	C.elegans in biotechnology, PG_00196937						
Field of study	Biotechnology						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2027/2028		
Education level	Bachelor's studies		Subject group		Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study		
Mode of study	full-time studies		Mode of delivery		at the university		
Year of study	2		Language of instruction		Polish		
Semester of study	4		ECTS credits		1.0		
Learning profile	academic		Assessment form		credit		
Conducting unit							
Name and surname of lecturer (lecturers)	Subject supervisor		dr Marta Krychowiak-Maśnicka				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	0.0	0.0	0.0	0.0	12.0	12
	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	12		2.0		11.0	25
Subject objectives	The objective of the course is to acquaint students with the potential applications of the nematode *Caenorhabditis elegans* in scientific research and developmental work within biotechnology and related disciplines. Throughout the course, students will apply and advance their knowledge of processes at the cellular, tissue, and organismal levels that are fundamental to the design and execution of experiments employing *C. elegans*. Furthermore, students will gain an advanced understanding of the models and methodologies utilized in nematode-based research, thereby advancing their comprehension of the molecular foundations of biological phenomena and their broader significance.						

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOTECHL3_W02] The graduate knows and understands at an advanced level selected processes at the cell, tissue, and organism level, important from the biological point of view	Through the course, the student integrates prior knowledge of biological processes occurring in cells, tissues, and organisms, while acquiring advanced knowledge of these processes in C. elegans. Upon completion of the course, the student is expected to understand the significance of these processes for the planning and execution of biological experiments.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report
[BIOTECHL3_W01] The graduate possesses structured and advanced knowledge of biological phenomena at the molecular level and understands their importance for biotechnology.	Upon completion of the course, the student is expected to demonstrate advanced knowledge of molecular phenomena occurring in the cells and tissues of C. elegans, the understanding of which is essential for the design and execution of experiments using this model organism. The student is also expected to be able to apply this knowledge in developing biotechnological solutions to research problems.	[SW5] implementation of a problem task

Subject contents

During the course, topics will be addressed concerning the use of C. elegans as a model organism in research, including genetics and cell biology, toxicology and drug development, hostmicroorganism interactions, as well as studies on neurodegenerative diseases.

Prerequisites and co-requisites

- cell biology
- molecular biology
- english

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
oral presentation and discussion	51.0%	50.0%
presentation preparation	51.0%	50.0%

Recommended reading

Basic literature	https://wormbook.org/ https://www.wormatlas.org/ https://wormbase.org/#012-34-5 scientific publications recommended during the course by the instructor
Supplementary literature	scientific publications recommended during the course by the instructor
eResources addresses	

Example issues/ example questions/ tasks being completed

- genetic and phenotypic determinants of locomotion
- fat metabolism in the regulation of satiety behavior
- stress-induced apoptosis of germ cells
- beta-amyloid toxicity and screening of potential drugs

Work placement

Not applicable

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