University of Gdańsk

Subject card

Subject name and code	Arabidopsis thaliana in the biomedical research development, PG_00153691		
Field of study	Biotechnology		
Date of commencement of studies	October 2024	Academic year of realisation of subject	2025/2026
Education level	undergraduate studies	Subject group	
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish The language of instruction is Polish, but most of the materials are in English.
Semester of study	4	ECTS credits	1.0
Learning profile	academic	Assessment form	
Conducting unit	Zakład Ochrony i Biotechnologii Roślin -> Instytut Biotechnologii UG -> Intercollegiate Faculty of Biotechnology UG-MUG		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Anna Ihnatowicz	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	12.0	0.0	0.0	0.0	0.0	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	6.0	12.0	30

Subject objectives

The aim of the course is to introduce students to molecular (BIOTECHL3_W01) and cellular (BIOTECHL3_W02) processes of key importance for biology and biotechnology, which were first discovered and studied in *Arabidopsis thaliana* as a model plant, and which contributed to the development of biomedical research important for the protection of human health and the development of new therapies.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[BIOTECHL3_W02] The graduate knows and understands selected processes at the cell, tissue and organism level, important from the biological point of view	The student knows and understands selected processes at the cellular, tissue and organismal level that were first discovered and studied in Arabidopsis thaliana as a model plant and that are biologically important.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report
[BIOTECHL3_W01] The graduate knows and understands basic biological phenomena at the molecular level, he/she is familiar with their significance for biotechnology.	The student understands basic biological phenomena at the molecular level, of key importance for biology and biotechnology, which were first discovered and studied in Arabidopsis thaliana as a model plant, knows their importance for biotechnology.	[SW4] test/exam - oral or written [SW2] presentation/project/paper/ report

<table>
<tr><td>Subject contents</td><td>

- Cryptochromes and the biological clock and circadian rhythm.
- Epigenetic modifications and chromatin remodeling.
- The role of chromatin remodeling complexes. DNA methylation.
- Studies of light signaling in plants and research directions related to mammalian carcinogenesis, DNA damage and lipid metabolism.
- CSN signalosome (COP9).
- Auxins, ubiquitination systems and human diseases.
- Innate immunity and intracellular receptors.
- Receptor kinases, ion transport and G protein-dependent signaling.
- ARGONAUTE proteins and RNA silencing.
- Genetic variation and genome-wide association studies (GWAS).

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<tr><td>Prerequisites and co-requisites</td><td></td></tr>
<tr><td>Assessment methods and criteria</td><td>
<table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>test/exam - written</td><td>51.0%</td><td>75.0%</td></tr>
<tr><td>pptx presentation based on a selected scientific publication</td><td>51.0%</td><td>25.0%</td></tr>
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<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>Literature sources given during lectures</td></tr>
<tr><td>Supplementary literature</td><td>--</td></tr>
<tr><td>eResources addresses</td><td>Podstawowe
https://www.arabidopsis.org/ - Free Database for Arabidopsis "The Arabidopsis Information Resource"
https://pubmed.ncbi.nlm.nih.gov/ - Free, full-text archive of biomedical and life science journal literature
Adresy na platformie eNauczanie:</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">--</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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