University of Gdańsk

Subject card

Subject name and code	Arabidopsis thaliana in the biomedical research development, PG_00196935		
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	Laboratory of Plant Protection and Biotechnology -> UG Institute of Biotechnology -> Intercollegiate Faculty of Biotechnology UG-MUG -> Rector		
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	0.0	12.0	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	2.0	11.0	25

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 at an advanced level 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 possesses structured and advanced knowledge of biological phenomena at the molecular level and understands their importance for biotechnology.	The student understands 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></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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