

Subject card

Subject name and code	Arabidopsis thaliana in the biomedical research development, PG_00197632						
Field of study	Biotechnology						
Date of commencement of studies	October 2025	Academic year of realisation of subject			2026/2027		
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	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	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 <i>Arabidopsis thaliana</i> 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 <i>Arabidopsis thaliana</i> 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 basic biological phenomena at the molecular level, of key importance for biology and biotechnology, which were first discovered and studied in <i>Arabidopsis thaliana</i> as a model plant, knows their importance for biotechnology.			[SW4] test/exam - oral or written [SW2] presentation/project/paper/report		

Subject contents	<ul style="list-style-type: none"> • 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). 		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	test/exam - written	51.0%	75.0%
	pptx presentation based on a selected scientific publication	51.0%	25.0%
Recommended reading	Basic literature	Literature sources given during lectures	
	Supplementary literature	--	
	eResources addresses		
Example issues/ example questions/ tasks being completed	--		
Work placement	Not applicable		

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