

Subject card

Subject name and code	Plant physiology under stress conditions, PG_00143961						
Field of study	Natural Resources Conservation						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2025/2026		
Education level	Bachelor's studies	Subject group			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	3	Language of instruction			Polish		
Semester of study	5	ECTS credits			1.0		
Learning profile	academic	Assessment form					
Conducting unit	Laboratory of Plant Physiology and Toxicology -> Department of Experimental Biology and Plant Biotechnology -> Faculty of Biology -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Agnieszka Baścik-Remisiewicz				
	Teachers						
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						
	Additional information: Analysis of texts with discussion, multimedia presentations prepared by students						
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		2.0		8.0	25
Subject objectives	<ol style="list-style-type: none"> To acquaint students with the influence of abiotic natural and anthropogenic factors on physiological processes in plants and with the adaptation of plants to changing environmental conditions. To acquaint students with the basic mechanisms of pollutant detoxification in plants. To acquaint students with the possibilities of using plants to clean the environment of chemical pollutants. 						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[OZPL3_W09] The graduate possesses an advanced comprehension of the current state of knowledge and the latest trends in biology, as well as their relationship to other natural disciplines	The graduate is familiar with the development and current state of knowledge in the field of physiology stress of plant organisms and the latest biological trends and their relationship with other natural disciplines.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work
	[OZPL3_W03] The graduate understands the basic physiological processes and their relationship to the organism's adaptation to changing environmental conditions	The graduate will know and understand the course of basic physiological processes in plant cells and their relationship to the adaptation of the plant organism to changing environmental conditions.	[SW1] oral statement/ conversation/discussion [SW2] presentation/project/paper/ report [SW3] text preparation/written work
	[OZPL3_K01] The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development	The graduate is ready to recognise the limitations in his/her own knowledge and understands the need for continuous learning and development.	[SK8] observation of student's independent or team work
[OZPL3_U11] The graduate is able to present in Polish and in a foreign language on specific issues in the field of biology during oral presentations	The graduate has the ability to give oral presentations in Polish on specific issues in plant physiology under stress.	[SU1] oral statement/conversation/ discussion [SU2] presentation/project/paper/ report	
Subject contents	<p>Influence of natural abiotic factors on plant physiological processes.</p> <p>Influence of substances of anthropogenic origin on the vital activities of plants.</p> <p>Selected mechanisms of detoxification of toxic substances in plant cells.</p> <p>The use of plants to cleanse the environment of chemical pollutants.</p>		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	multimedia presentation	51.0%	50.0%
	essay	51.0%	50.0%
Recommended reading	Basic literature	<p>Kopcewicz J., Lewak S. (red.). (2012). Fizjologia roślin. Wyd. PWN, Warszawa.</p> <p>Szmidt-Jaworska A., Kopcewicz J (red).2020. Fizjologia Roślin Wyd. PWN, Warszawa</p> <p>Wybrane artykuły z czasopism naukowych.</p>	
	Supplementary literature	<p>Aksmann, A., Pokora, W., Baścik-Remisiewicz, A., & Zalewska, M. (2022). Microalgal Metal Remediation from Industrial Wastewater. In Algal Biorefineries and the Circular Bioeconomy (pp. 147-181). CRC Press.</p> <p>Fitter A.H., Hay R.K.M. (2002). Environmental Physiology of Plants. Academic Press, A Division of Harcourt, Inc., UK.</p> <p>Hirt H., Shinozaki K. (red.). (2004). Plant Responses to Abiotic Stress. Springer-Verlag. Prasad M.N.V. (1996). Plant Ecophysiology. J. Wiley & Sons, New York.</p> <p>Wybrane artykuły z czasopism naukowych.</p>	
	eResources addresses		

Example issues/ example questions/ tasks being completed	
Work placement	Not applicable

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