

Course title:	Gasotransmitters in living organisms
Course title in Polish:	Gazotransmitery w organizmach żywych
Course for discipline:	biological sciences, agriculture and horticulture, veterinary science

Semester:	5	Status of course:	faculty	Language:	english
Academic year:	2027/28	Catalog number:	76/2025/26		

Coordinator of course:	dr hab. Urszula Krasuska, prof. SGGW
Lecturer od course:	dr hab. Urszula Krasuska, prof. SGGW
Executing unit:	Institut of Biology, Department of Botany and Plant Physiology
Ordering unit:	Doctoral School SGGW
Assumptions, goals and description of the course:	The aim of the course is to present the mode of action of gasotransmitters in plant and animal cells. The metabolism of gasotransmitters will be presented. The function of various gaseous compounds and their cellular cross-talk will be characterised. The series of lecture-experimental meetings will include: characterization of basic gasotransmitters and their involvement on metabolism, including the participation in cellular signal transduction. The functioning of cells depending on the concentration of gasotransmitters will be discussed. The gasotransmitters detoxification in plants and animals will be compared. Experiment: detection of chosen gasotransmitter.
Didactic form, number of hours:	15 hours
Teaching methods:	Presentation, discussion conducted in subgroups, lecture using audiovisual techniques
Limit of people in the group:	10

Learning outcomes

KNOWLEDGE - the graduate knows and understands:	SKILLS - the graduate is able to:	COMPETENCES - the graduate is ready to:
To the extent enabling to revise the existing paradigms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	Critically evaluate the achievements in the field/discipline represented
Major general development trends in the field/discipline		Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect
		Support the ethos of scientific circles and conduct independent research
The method of verification of learning outcomes:	presentation of a selected topic	
Form of documentation of achieved learning outcomes:	student's name worksheet	
Elements and weights of the final grade:	presentation of the selected topic 100%	
Place of the course:	seminar room, laboratory room	

Basic and supplementary literature

Current publications on the topic from reputable journals with a high impact factor.

Comments:	
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Estimated number of hours of work of the doctoral student necessary to achieve the assumed learning outcomes:	15
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Learning outcomes reference to the second degree characteristics of the National Qualification Framework (level 8) covering doctoral competences:		
Symbol:	Learning outcomes:	8 level NQF
SD1_KW01	To the extent enabling to revise the existing paradigms in the field/discipline - the world achievements, gathering theoretical background as well as general and selected detailed issues	P8S_WG
SD1_KW02	Major general development trends in the field/discipline	P8S_WG
SD1_KU05	Carry out critical assessment of the scientific research findings and expert activities and their contribution to the knowledge development in the field/discipline	P8S_UW
SD1_KK01	Critically evaluate the achievements in the field/discipline represented	P8S_KK
SD1_KK03	Recognise knowledge in solving cognitive and practical problems characteristic for the area of research (field/discipline) and in an interdisciplinary aspect	P8S_KK
SD1_KK08	Support the ethos of scientific circles and conduct independent research	P8S_KR