

1.	<b>Field of study</b>	<b>Biotechnology</b>
2.	Faculty	Faculty of Natural Sciences
3.	Academic year of entry	2025/2026 (winter term)
4.	Level of qualifications/degree	first-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

7.	<b>General information about the module</b>	
<b>Module name</b>		<b>Hormonal regulation of plant growth and development</b>
Module code		1BT_23_22
Number of the ECTS credits		4
Language of instruction		
Purpose and description of the content of education		The Hormonal regulation of plant growth and development module enables the student to deepen knowledge of the structure and mechanism of action of plant growth regulators, polar IAA transport, the role of phytohormones in the plant's response to abiotic stress, the acidic growth theory, the influence of plant regulators on the functioning of stomata. It provides knowledge of basic research techniques used in plant physiology and biotechnology.
List of modules that must be completed before starting this module (if necessary)		not applicable

8.	<b>Learning outcomes of the module</b>			
Code	Description	Learning outcomes of the programme		Level of competenc (scale 1-5)
1	Defines, classifies, and describes the basic concepts and terminology related to plant growth and development.	1BT_U07		5
2	Describes the structure of plant growth regulators.	1BT_W01		2
		1BT_W04		3
3	Explains the mechanisms of action of phytohormones at the molecular and cellular level in plants.	1BT_W02		3
		1BT_W03		4
4	Describes and explains the phenomena that occur during plant growth and development.	1BT_K03		3
		1BT_W03		5
5	Conducts simple experiments, describes the experiment's effects, analyzes the results, draws conclusions, and presents them as reports. Knows basic research techniques used in plant physiology and biotechnology. Has a habit of updating specialist knowledge.	1BT_K05		5
		1BT_U03		2
		1BT_U04		3
		1BT_U05		3
		1BT_U09		5
		1BT_W06		5

		1BT_W09	5
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9. Methods of conducting classes		
Code	Category	Name (description)
a02	Lecture methods / expository methods	Monographic lecture <i>an exhaustive discussion of one issue, usually related to the research interests of the person teaching the course or a thorough presentation of one selected issue</i>
b02	Problem-solving methods	Lecture-discussion <i>transmission of content involving interaction with the lecture audience; discussion of lecture-related issues is one of its elements or constitutes its follow-up</i>
b07	Problem-solving methods	Activating methods: a case study <i>a comprehensive description of a phenomenon connected with the selected discipline; reflecting the reality, presenting the 'what', 'where' and 'how' of the phenomenon, i.e., all of its key aspects to be discussed in class; used as a reproduction, presentation, discussion or diagnosis of factors that shape the phenomenon or interact with it; an in-depth qualitative analysis and evaluation of a selected phenomenon</i>
e01	Practical methods	Laboratory exercise / experiment <i>[also conducted as fieldwork] a method of practical application of knowledge; implemented in three stages: the recognition of a problem induced by the task content, the formulation of the problem and the attempt to solve it accompanied by the assessment of the effects; the goal is to acquire skills, abilities and habits, and to consolidate the acquired knowledge so that it becomes operational; the laboratory method assumes greater independence of learners than carrying out an experiment</i>
e06	Practical methods	Observation <i>also conducted as fieldwork; a method of watching phenomena, objects or people in a systematic/planned way in order to gain knowledge about them; perceptual separation of elements of a model action as an element of learning through imitation; a complex system of cognition based on sensory experiences</i>
e08	Practical methods	Practice-as-research <i>also conducted as fieldwork; an activity aimed at confronting the acquired theory with practice through its practical application; students situate themselves in the reality they observe, study and transform through the prism of the theory; the method of practical classes is dominated by the application of knowledge to solving practical tasks</i>
f02	Methods of self-learning	Individual work with a text <i>searching for and acquiring new information using textbooks and other written sources (including their digital versions); searching for texts, selecting fragments for analysis/interpretation, using other texts to solve a problem related to the studied issue</i>

10. Forms of teaching					
Code	Name	Number of hours	Assessment of the learning outcomes of the module	Learning outcomes of the module	Methods of conducting classes
1	laboratory classes	40	course work	1, 2, 3, 4, 5	e01, e06, e08
2	discussion classes	10	course work	1, 2, 3, 4	b02, b07
3	lecture	10	course work	1, 2, 3, 4	a02, f02

11. The student's work, apart from participation in classes, includes in particular:			
Code	Category	Name (description)	Is it part of the BUNA?
a01	Preparation for classes	Search for materials and review activities necessary for class participation	Yes

		<i>reviewing literature, documentation, tools and materials as well as the specifics of the syllabus and the range of activities indicated in it as required for full participation in classes</i>	
a02	Preparation for classes	Literature reading / analysis of source materials <i>reading the literature indicated in the syllabus; reviewing, organizing, analyzing and selecting source materials to be used in class</i>	Yes
a03	Preparation for classes	Developing practical skills <i>activities involving the repetition, refinement and consolidation of practical skills, including those developed during previous classes or new skills necessary for the implementation of subsequent elements of the curriculum (as preparation for class participation)</i>	Yes
b01	Consulting the curriculum and the organization of classes	Getting acquainted with the syllabus content <i>reading through the syllabus and getting acquainted with its content</i>	No
c02	Preparation for verification of learning outcomes	Studying the literature used in and the materials produced in class <i>exploring the studied content, inquiring, considering, assimilating, interpreting it, or organizing knowledge obtained from the literature, documentation, instructions, scenarios, etc., used in class as well as from the notes or other materials/artifacts made in class</i>	Yes
d01	Consulting the results of the verification of learning outcomes	Analysis of the corrective feedback provided by the academic teacher on the results of the verification of learning outcomes <i>reading through the academic teacher's comments, assessments and opinions on the implementation of the task aimed at checking the level of the achieved learning outcomes</i>	No

Information on the details of the module implementation in a given academic year can be found in the syllabus available in the USOS system: <https://usosweb.us.edu.pl>.