



SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Physiological Basics of Herbs and Vegetables Production

Educational subject description sheet

Basic information

Field of study Course Offer for exchange students - second cycle studies, including uniform master studies (MA programmes)		Didactic cycle 2024/25
Speciality -		Subject code PWMPWM2S_D.B100000P.06346.24
Organizational unit Course Offer for exchange students		Lecture languages english
Study level second cycle studies, including uniform master studies (MA programmes)		Mandatory Elective subjects
Study form full-time studies		Block Basic subjects
Education profile General academic		Disciplines
Coordinator	Olga Kosakowska	
Teacher	Olga Kosakowska	
Period Winter semester	Examination Pass with grade	Number of ECTS points 3
	Activities and hours Lecture: 15 Laboratory exercises: 13 Field exercises: 2	

Goals

Code	Goal
C1	The purpose of the subject is to provide students with the basic mechanisms of life processes of plants growth, responsible for productivity and yield both in the field and under cover covers. Indication of the potential impact of external and internal factors in the regulation of physiological processes in vegetable and medicinal plants.

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	mechanisms of regulation and control of plant life processes affecting the economic yield		Test (written or computer based)
W2	the possibility of adapting the cultivation in the field and under covers in order to optimize yield		Test (written or computer based)
Skills - Student can:			
U1	to plan and carry out an experiment designed to determine the influence of various factors on the yield and quality of vegetable and medicinal plants		Report, Test (written or computer based), Assessment of activity during classes
U2	to give a presentation and lead a discussion on his paper		Presentation, Test (written or computer based)
Social competences - Student is ready to:			
K1	the creativity and ability to work in the group		Presentation, Assessment of activity during classes
K2	the need to act in accordance with ethical		Presentation, Assessment of activity during classes

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Characteristics of physiology of plants yielding as an interdisciplinary science. Examples of methods used in modern physiology of plants. Definition and usage of growth-ratio analysis.	W1, W2	Lecture, Field exercises
2.	The relationship between photosynthesis, respiration, productivity, and yielding. Transport of assimilates and their distribution patterns. The effect of external and internal factors on yielding of selected vegetables and herbs.	W1, W2, U1, U2	Lecture, Laboratory exercises
3.	Determination of the phenolic compounds content (as stress indicator) in selected raw materials.	W1	Lecture, Laboratory exercises

4.	Issues related to the achievement of plant physiology in assessing the productivity of different varieties of vegetables and herbs.	W1, W2, U1, U2, K1, K2	Lecture, Field exercises
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Course advanced

Activities	Methods of conducting classes
Lecture	Lecture
Laboratory exercises	Teamwork, Laboratory (experiment), learning by experiment
Field exercises	Observation, Field measurements

Activities	Examination method	Percentage
Lecture	Test (written or computer based)	65%
Laboratory exercises	Presentation	15%
Laboratory exercises	Report	10%
Field exercises	Assessment of activity during classes	10%

Activities	Credit conditions
Lecture	Grade over 51%
Laboratory exercises	Presence during classes, lab work
Field exercises	Presence during classes

Literature

Obligatory

1. Taiz L., Zeiger E. 2002, Plant Physiology, 3rd ed, ISBN: 0878938230
2. Pessaraki M., 2002, Handbook of Plant and Crop Physiology, ISBN: 0824705467
3. Review articles on herbs and vegetable physiology

Optional

1. Kosakowska O., Węglarz Z., Bączek K. 2021. The effect of open field and foil tunnel on yield and quality of the common thyme (*Thymus vulgaris* L.) in organic farming. *Agronomy* 11, 197.
2. Kosakowska O., Bączek K., Przybył J., Pawełczak A., Rolewska K., Węglarz Z. 2020. Morphological and chemical traits as quality determinants of common thyme (*Thymus vulgaris* L.), on the example of 'Standard Winter' cultivar. *Agronomy* 10, 909.
3. Węglarz Z., Kosakowska O., Przybył J., Pióro-Jabrucka E., Bączek K. 2020. The quality of Greek oregano (*O. vulgare* L. subsp. *hirtum* (Link) Letswaart) and common oregano (*O. vulgare* L. subsp. *vulgare*) cultivated in the temperate climate of Central Europe. *Foods* 9, 1671.
4. Bączek K., Wiśniewska M., Przybył J., Kosakowska O., Węglarz Z. 2019. Arbuscular mycorrhizal fungi in chamomile (*Matricaria recutita* L.) organic cultivation. *Industrial Crops and Products* 140, 1-8.
5. Szymborska-Sandhu I., Przybył J., Kosakowska O., Bączek K., Węglarz Z. 2020. Chemical diversity of bastard balm (*Melittis melisophyllum* L.) as affected by plant development. *Molecules* 25, 2421.

Calculation of ECTS points

Activity form	Activity hours*
Lecture	15
Laboratory exercises	13
Field exercises	2
Preparation for exercises	10
Preparing a report	5
Preparation of a multimedia presentation	10
Preparation for the exam	20
Student workload	Hours 75
Number of ECTS points	ECTS 3

* hour means 45 minutes