



SZKOŁA GŁÓWNA  
GOSPODARSTWA  
WIEJSKIEGO

## Propagation of ornamental plants

### Educational subject description sheet

#### Basic information

<p><b>Field of study</b> Course Offer for exchange students - second cycle studies, including uniform master studies (MA programmes)</p> <p><b>Speciality</b> -</p> <p><b>Organizational unit</b> Course Offer for exchange students</p> <p><b>Study level</b> second cycle studies, including uniform master studies (MA programmes)</p> <p><b>Study form</b> full-time studies</p> <p><b>Education profile</b> General academic</p>	<p><b>Didactic cycle</b> 2024/25</p> <p><b>Subject code</b> PWMPWM2S_D.B100000.00797.24</p> <p><b>Lecture languages</b> english</p> <p><b>Mandatory</b> Elective subjects</p> <p><b>Block</b> Basic subjects</p> <p><b>Disciplines</b></p>	
<b>Coordinator</b>	Andrzej Pacholczak	
<b>Teacher</b>	Andrzej Pacholczak	
<b>Period</b> Winter semester	<b>Examination</b> Pass with grade	<b>Number of ECTS points</b> 3
	<b>Activities and hours</b> Lecture: 15 Auditorium exercises: 15	

#### Goals

Code	Goal
C1	To let the students study the basic principles of generative and vegetative propagation of ornamental plants by using cuttings, grafting, and tissue cultures and the meaning of these techniques for commercial production.

## Entry requirements

The knowledge base of Botany, Plant physiology, dendrology.

## Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
<b>Knowledge - Student knows and understands:</b>			
W1	how to apply methods of propagation of ornamental plants.		Presentation, Test (written or computer based), Assessment of work in the laboratory
W2	what conditions are necessary for the proper conduct of plant propagation, both in greenhouses and in tissue culture.		Presentation, Test (written or computer based), Assessment of work in the laboratory
<b>Skills - Student can:</b>			
U1	provide proper conditions for propagation of ornamentals.		Presentation, Test (written or computer based), Assessment of work in the laboratory
U2	make stem cuttings, to graft shrubs and to multiply perennials.		Presentation, Test (written or computer based), Assessment of work in the laboratory
<b>Social competences - Student is ready to:</b>			
K1	creatively and skillfully work in a group.		Assessment of work in the laboratory
K2	to act in accordance with ethical.		Test (written or computer based), Assessment of work in the laboratory

## Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Importance of different methods of propagation of woody plants, perennials and pot plants in commercial nurseries. Stimulators of rooting. Assortment of ornamentals (trees, shrubs, perennials and pot plants) in selling points. Scale of production and market demands.	W1, W2, U1, K2	Lecture

No.	Course content	Subject's learning outcomes	Activities
2.	Individual application of generative (seed sowing) and vegetative propagation (stem cuttings - leafy and woody cuttings) including application of rooting stimulants. Carrying out the experiments and gathering results. Preparation of powder and liquid forms of rooting stimulants. Grafting of ornamental trees and shrubs - choice of a proper method for an individual species. A choice of rootstocks for grafting. Propagation of perennials by conventional methods and in vitro. Evaluation of efficiency of individual propagation methods.	W1, W2, U1, U2, K1, K2	Auditorium exercises

### Course advanced

Activities	Methods of conducting classes
Lecture	Presentation, Problem solving, Field observations
Auditorium exercises	Presentation, Teaching technique in the form of play, exact, task, Individual work, Observation

Activities	Examination method	Percentage
Lecture	Test (written or computer based)	50%
Auditorium exercises	Assessment of work in the laboratory	25%
Auditorium exercises	Presentation	25%

Activities	Credit conditions
Lecture	Evaluation test.
Auditorium exercises	Self-working tasks, the activity of students during practice, presentation.

### Literature

#### Obligatory

- Hartmann H.T., Kester D.E., Davies F.T., Geneve R.L. 2002. Plant propagation. Principles and practices. Prentice Hall.
- Kroin J. 2009. Propagation of plants from cuttings using rooting solutions by foliar methods. Combined Proceedings, International Plant Propagator's Society 59: 437-453.
- Macdonald B. 1989. Practical woody plant propagation for nursery growers. Timber Press, Portland, Oregon.

#### Optional

- Pacholczak A., Szydło W., Łukaszewska A., 2005. Effectiveness of foliar auxin application to stock plants in rooting of stem cuttings of ornamental shrubs. Propagation of Ornamental Plants 5(2): 100-106.
- Pacholczak A. 2015. The effect of the auxin application methods on rooting of Physocarpus opulifolius Maxim. cuttings. Propagation of Ornamental Plants 15(4): 147-153.
- Pacholczak A., Nowakowska K. 2017. The effect of the biopreparation 'Goteo' on rooting of hydrangea stem cuttings (Hydrangea paniculata 'Limelight' and VANILLE FREISE® 'Renhy'). Propagation of Ornamental Plants 17(4): 126-133.
- Pacholczak A., Nowakowska K. 2019. Micropropagation of February daphne (Daphne mezereum L.). Propagation of Ornamental Plants 19(4): 106-112.

## Calculation of ECTS points

<b>Activity form</b>	<b>Activity hours*</b>
Lecture	15
Auditorium exercises	15
Preparation of a multimedia presentation	10
Conducting empirical research	15
Preparation for the exam	25
<b>Student workload</b>	<b>Hours</b> 80
<b>Number of ECTS points</b>	<b>ECTS</b> 3

\* hour means 45 minutes