



SZKOŁA GŁÓWNA
GOSPODARSTWA
WIEJSKIEGO

Breeding methods of ornamental plants

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 2025/26	
Speciality -		Subject code PWMPWM2S_D.B100000P.00803.25	
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 Agriculture and horticulture	
Coordinator	Dariusz Sochacki		
Teacher	Dariusz Sochacki, Przemysław Marciniak		
Period Winter semester	Examination Exam	Number of ECTS points 3	
	Activities and hours Lecture: 15 Laboratory exercises: 15		

Goals

Code	Goal
C1	To give knowledge, how to create new cultivars of ornamental plants, particularly ornamental geophytes.
C2	Student will gain skills to carry out the breeding process, starting from determining the purpose of breeding, sources of variation, barriers to crossability and overcoming them, through the application of modern biotechnological methods to support the introduction of new traits into ornamental plants.

Entry requirements

Botany, plant physiology, basic knowledge of plant genetics

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge - Student knows and understands:			
W1	the sources of biodiversity of ornamental plants.		Written exam, Assessment of work in the laboratory
W2	the methods applied in ornamental plants breeding.		Written exam, Project
W3	knows the methods applied in maintenance breeding of ornamental plants		Written exam, Project
Skills - Student can:			
U1	to apply methods of overcoming crossing barriers occurring in ornamental plant breeding.		Assessment of work in the laboratory
U2	introduce new traits into ornamental plants.		Assessment of work in the laboratory
U3	to present detailed issues related to the breeding of ornamental plants in the form of an oral presentation supported by multimedia presentation.		Project
U4	to work creatively in a team.		Assessment of work in the laboratory
Social competences - Student is ready to:			
K1	to apply new technological solutions.		Project
K2	critically evaluate methods and technologies for the breeding of ornamental plants in relation to the current state of knowledge and environmental risks.		Project

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Introduction to the history of achievements and current development in ornamental plant breeding	W2, U2	Lecture
2.	Identification potential sources of variation (natural and gene banks) and potential uses for them.	W1	Lecture

No.	Course content	Subject's learning outcomes	Activities
3.	The barriers of crossing and possibilities of overcoming them; basic methods of breeding of ornamentals.	W2, U1, U2	Lecture
4.	The latest achievements in obtaining and introducing new sources of variability in ornamental plant breeding.	W1	Lecture
5.	Maintenance breeding methods used for ornamental plants	W2, W3, K2	Lecture
6.	Microscopic techniques used in ornamental plant breeding	W2, K1	Laboratory exercises
7.	Practical aspects of crossbreeding	W2, U1, U2, U4	Laboratory exercises
8.	Multimedia presentations by students on current problems of breeding of ornamental plants based on selected scientific articles	U3, K2	Laboratory exercises

Course advanced

Activities	Methods of conducting classes
Lecture	Lecture, Discussion, Presentation, Interpreting the results
Laboratory exercises	Case study, Discussion, Presentation, Analysis of source materials, Teamwork, Interpreting the results, Laboratory (experiment), learning by experiment, Field measurements, Field observations

Activities	Examination method	Percentage
Lecture	Written exam	60%
Laboratory exercises	Project	30%
Laboratory exercises	Assessment of work in the laboratory	10%

Activities	Credit conditions
Lecture	In order to pass the written exam, a minimum score of 51% of points is required. The following scale is used to calculate the final score of exam: 100-91% points - 5; 90-81% - 4.5; 80-71% - 4.0; 70-61% - 3.5 and 60-51% - 3.0.
Laboratory exercises	The PP presentation need a minimum score of 51% of points to pass. Grading scale identical to the exam. Practical assessment of work in the laboratory and greenhouse according to the scale 03 to 5 in half mark step.

Literature

Obligatory

1. Brown J. Caligari P., Campos H. 2014. Plant Breeding. Willey-Blackwell.
2. Van Huylbroeck J, (ed.) 2018. Handbook of Plant Breeding. Ornamental Crops. Springer
3. Chacal G.S., Gosal S.S. 2008. Principoles and Procedures of Plant Breeding. Biotechnological and Conventional Approaches. Alpha Science

Optional

1. Callaway D.J., Callaway M.B. 2009. Breeding ornamental plants. Timber Press
2. Acquaah G. 2012. Principles of Plant Genetics and Breeding. Willey-Blackwell.
3. Agronomy (MDPI). 2021. Special Issue – Cultivated Ornamental Crops – Breeding Aspects.
4. https://www.upov.int/test_guidelines/en/
5. <https://www.kavb.nl/databases/kavb-publicaties>

Calculation of ECTS points

Activity form	Activity hours*
Lecture	15
Laboratory exercises	15
Conducting literature research	8
Preparation for the exam	25
Preparation of a multimedia presentation	5
Self-study on the content covered in class	7
Student workload	Hours 75
Number of ECTS points	ECTS 3

* hour means 45 minutes