

Course name:	<b>Breeding Methods of Fruit Plants</b>	ECTS	<b>3</b>
Translation of the course name into English:	-		
Study field:	Genetics and conventional, mutational and molecular methods for creation of new plant cultivars in fruit plants,		

Language of lectures:		Study level: Master of science	
Study form: <input checked="" type="checkbox"/> stationary <input type="checkbox"/> extramural	Status of lectures: <input type="checkbox"/> primary <input checked="" type="checkbox"/> directional	<input type="checkbox"/> obligatory <input checked="" type="checkbox"/> facultative	Semester number: 2 <input type="checkbox"/> winter semester <input checked="" type="checkbox"/> spring semester
Academic year from which the description applies		<b>2021/2022</b>	Catalog number: <b>OGR-02-S-2Z16.30 ang</b>

Course coordinator:	Prof. Dr. hab. Andrzej A. Przybyla		
Lecturers:	Prof. Dr. hab. Andrzej A. Przybyla		
Unit running the course:	Department of Pomology		
Unit ordering the course:	Faculty of Horticulture		
Assumptions, objectives and description of the course:	The purpose of the course is transmission of knowledge, how to create new cultivars of fruit plants . Breeding of fruit crops: 1. <u>Genetic status of fruit plants</u> . 2. <u>Selection methods applied in classical breeding of fruit plants</u> : vegetatively propagated plants – breeding methods, multiplication and maintenance; self-fertilizing plants and cross-fertilizing fruit plants – methods of selection, multiplication and maintenance. 3. <u>Mutations and mutation breeding of fruit plants</u> : Mutations, their classification. Induction of mutations. Physical and chemical mutagens. Mutation breeding in seed and vegetatively propagated fruit plants. 4. <u>Resistance breeding methods of fruit plants</u> . 5. <u>Molecular techniques in breeding of fruit plants</u> : Molecular DNA markers in breeding. Transgenesis. New molecular breeding techniques.		
Didactic forms, number of hours:	Lectures 15 hrs and practical training 15 hrs, together 30 hrs.		
Teaching methods:	Multimedial presentation, practical training, discussion.		
Formal requirements and prerequisites:	Basic knowledge of plant genetics, plant anatomy and physiology.		
Learning outcomes:	Knowledge: Knowledge of methods applied in fruit plants breeding.	Skills: Application of studied methods for practical breeding. Application of molecular methods for identification of hybrids and mutants.	Competences: Independent conducting of breeding programme of fruit plants. Consciousness of necessity for continuous scientific self-improvement.
The way of verification of learning outcomes :	Oral exam at the end of every part of 5 sections of breeding course mentioned above.		
Form of documentation of achieved learning outcomes :	List of grades. Grading is based on a scale ranging from 2 to 5.		
Elements and weights affecting the final grade:	Oral exams: 1 – 20%, 2 – 20%, 3 – 20%, 4 – 20%, 5 – 20%, together 100%		
Place of classes:	Lecture room, orchard, greenhouse, microscope, source of radiation, molecular laboratory.		
Basic and supplementary literature :			
1. Acquaah G. 2012. Principles of Plant Genetics and Breeding. Willey-Blackwell.			
2. Brown J. Caligari P., Campos H. 2014. Plant Breeding. Willey-Blackwell.			
3. Chacal G.S., S.S. Gosal. 2008. Principles and Procedures of Plant Breeding. Biotechnological and Conventional Approaches. Alpha Science.			
4. Janick J. and J.N. Moore. 1996. Fruit Breeding. John Wiley and Sons, Inc.			
5. Van Harten A.M. 2007. Mutation Breeding. Theory and Practical Applications. Cambridge University Press.			
6. Ortiz R. 2015. Plant Breeding in the Omics Era. Springer.			
7. Rex B. 2014. Essentials of Fruit Breeding. Stemma Press.			
8. Xu Y. 2010. Molecular Plant Breeding. CABI.			
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Quantitative indicators characterizing the module / object:

Estimated total number of student work hours (contact and own work) necessary to achieve the assumed learning outcomes - on this basis, complete the ECTS field:	<b>80 h</b>
The total number of ECTS points that a student receives in classes requiring direct participation of academic teachers or other lecturers:	<b>1,5 ECTS</b>

Table of compliance of the directional learning outcomes with the effects of the course:

Effect category	Learning outcomes for the course:	Reference to learning outcomes specific for study program on particular study field (direction)	The impact of course on the directional effect <sup>*)</sup>
Knowledge -	Knowledge of methods applied in fruit plants breeding.	K_W01, +++, K_W07 +++, K_W15 +	3
Knowledge -			
Skills -	Application of studied methods for practical breeding.	K_U09+++, K_U13+++, K_U17+++	3
Skills -	Application of molecular methods for identification of hybrids and mutants.	K_U09+++, K_U13+++, K_U17+++	3
Competences -	Independent conducting of breeding programme for fruit plants	K_K03+++, K_K07++	3
Competences -	Consciousness of necessity for continuous scientific self-improvement	K_K01+++	3

\*)

3 – znaczący i szczegółowy,

2 – częściowy,

1 – podstawowy,

