

Course name: Ecological methods of plant protection

ECTS	3
Course status	<i>facultative</i>
Course final assessment /evaluation of outcomes	<i>written test, oral presentation, and individual reports from laboratory activities</i>
Prerequisite	<i>course of biology, fundamental information about pests and diseases of plants</i>

Main field of study:

Agriculture and Horticulture (Erasmus+)

Educational profile	<i>general academic</i>
Code of studies and education level	<i>bachelor/engineer (SI) or master of science (SM)</i>
Semester of studies	<i>winter and summer semester</i>
Language of instruction	<i>English</i>

Course offered by:

Name of faculty offering the course	Faculty of Biotechnology and Horticulture
Name of department offering the course	Department of Botany, Physiology and Plant Protection
Course coordinator	dr hab. inż. Elżbieta Wojciechowicz-Żytka, dr hab. inż. Jacek Nawrocki

Learning outcomes:

Symbol of outcome	Description of the learning outcome	Reference to main field of study outcomes	Area symbol*
KNOWLEDGE – student knows and understands:			
EMPP_W1	the principles of ecological plant protection	OGR_W02	R
EMPP_W2	ways of non-chemical protection of plants against pathogens and pests	OGR_W02	R
EMPP_W3	the importance of biodiversity and its impact on the stability of the agroecosystem	OGR_W03, OGR_W04	R
SKILLS – student is able to:			
EMPP_U1	choose alternative protection methods that limit chemization	OGR_U02	R
EMPP_U2	interpret the results of experiments and draw conclusions	OGR_U02 OGR_U04	R
EMPP_U3	organize activities towards increasing environmental resistance	OGR_U03	R
SOCIAL COMPETENCIES – student is ready to:			
EMPP_K1	providing objective information regarding the principles of Good Agricultural Practice	OGR_K01	R
EMPP_K2	presenting the negative effects of agricultural chemisation and ways to limit them	OGR_K02	R

Teaching contents

Lectures:	15 hours
Topics	<ol style="list-style-type: none"> 1. Basic information on organic production and plant protection. Biodynamic, organic, ecological agriculture. 2. The importance of biodiversity of species of plants and animals in ecological plant protection against pests and pathogens. The role of wild plants. 3. Agronomic and mechanical methods in the protection of plants against agrophages. The use of mixed crops, water extracts, natural pesticides plant protection, and products qualified for use in organic farming in reducing pests and pathogens.

	<ol style="list-style-type: none"> 4. Other non-chemical methods of plant protection. Methods for detection and forecasting of pests and pathogens. 5. Naturally occurring beneficial organisms limiting the number of pests and pathogens. The impact of pesticides on beneficial organisms.
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Accomplished learning outcomes	EMPP- -W3
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Means of verification, rules and criteria of assessment	exam (contribution to the final grade from the course 50%)
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Classes:	15 hours
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Topics	<ol style="list-style-type: none"> 1. Preparation of selected plant preparations / liquid manure, extracts, decoctions, infusions / for pest and pathogens control - testing their effectiveness. 2. Study of the impact of applied preparations of natural origin on the development of selected plant pathogens in laboratory conditions. 3. Making and setting simple traps for protecting plants and catching pests. 4. Field exit - to learn about the functioning of an ecological farm.
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Accomplished learning outcomes	EMPP_U1 -U3, EMPP_K1-K2
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Means of verification, rules and criteria of assessment	preparing presentations, and reports on laboratory work (contribution to the final grade from the course 50%)
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References:

Basic	Agrios G. 2005. Plant Pathology. Academic Press. Deguine J-P., Gloanec C., Laurent P, Ratnadass A, Aubertot J-N. 2017. Agroecological Crop Protection. Springer
Supplementary	van Emden H.F. , Harrington R., 2007. Aphids as crop pests. CAB International

Structure of learning outcomes

Area of academic study: agriculture and horticulture	3.0 ECTS**
Area of academic study: biological sciences	... ECTS**

Structure of student activity

Contact hours	35	hrs.	1.4	ECTS**
Including:				
lectures	15	hrs.		
classes and seminars	15	hrs.		
consultations	3	hrs.		
participation in research		hrs.		
obligatory traineeships		hrs.		
participation in examination	2	hrs.		
e-learning		hrs.	...	ECTS**
student own work	40	hrs.	1.6	ECTS

*areas of academic study in the fields of P – biological sciences; R – agriculture and horticulture

** stated with an accuracy to 0.1 ECTS, where 1 ECTS = 25 - 30 hours of classes