

A COURSE SYLLABUS – DOCTORAL SCHOOL
REGARDING THE QUALIFICATION CYCLE FROM 2022 TO 2026

GENERAL INFORMATION ABOUT COURSE				
Course title	Harmful and beneficial insects in integrated protection of agricultural and horticultural plants			
Name of the unit running the course	Doctoral School, University of Rzeszów			
Type of course (<i>obligatory, optional</i>)	Optional specialist			
Year and semester of studies	II/4			
Discipline	Agriculture and horticulture			
Language of Course	Polish			
Name of Course coordinator	Dr hab. Bogdan Wiśniowski, prof. UR			
Name of Course lecturer	Dr hab. Bogdan Wiśniowski, prof. UR			
Prerequisites	General entomology			
BRIEF DESCRIPTION OF COURSE (100-200 words)				
<p>To familiarize students with knowledge about:</p> <ol style="list-style-type: none"> principles of integrated protection of agricultural plants groups of insects that play a harmful role in agricultural crops: systematics and characteristics of harmful insects; soil pests, pests of legumes, pests of root crops, pests of industrial plants, pests of cereal plants, warehouse pests groups of insects that play a useful role in agricultural crops: systematics and characteristics of beneficial insects; predatory insects, parasitic insects, pollinators <p>Learning methods to increase the diversity and number of beneficial insects in agricultural and horticultural crops.</p>				
COURSE LEARNING OUTCOMES AND METHODS OF EVALUATING LEARNING OUTCOMES				
Learning outcome	The description of the learning outcome defined for the course	Relation to the degree programme outcomes (symbol)	Learning Format (Lectures, classes,...)	Method of assessment of learning outcomes (e.g. test, oral exam, written exam, project,...)
Knowledge (no.)	(Knows and understands)			
1	To an extent that makes it possible to revise existing paradigms – global achievements, including theoretical foundations and general issues and selected detailed issues – specific to a given scientific or artistic discipline.	P8S_WG1	Colloquia	written exam
2	Trends in development and the latest discoveries in a selected scientific discipline, current scientific achievements, including global achievements, regarding research in the area of a given discipline.	P8S_WG2	Colloquia	written exam
3	The conceptual network of a given discipline (also in a foreign	P8S_WG3	Colloquia	written exam

	language) and related disciplines.					
4	Fundamental dilemmas of modern civilization.	P8S_WK1	Colloquia		written exam	
Skills (no.)	(Able to)					
1	Use knowledge from various fields of science or the field of arts to creatively identify and innovatively solve complex problems or perform tasks of a research nature, particularly: <ul style="list-style-type: none"> define the purpose and subject of scientific research, formulate a research hypothesis, develop research methods, techniques and tools and apply them in a creative manner , draw conclusions on the basis of scientific research. 	P8S_UW1	Colloquia		written exam	
2	use scientific literature to identify and solve research and innovation problems; can use the appropriate workshop to create new elements of these achievements.	P8S_UW2	Colloquia		written exam	
3	conduct a critical analysis and evaluation of scientific research results, expert activity and other creative works and their contribution to the development of knowledge.	P8S_UW3	Colloquia		written exam	
4	Use a foreign language at the B2 level of the Common European Framework of Reference for Languages (CEFR) to a degree that allows for participation in the international scientific and professional environment.	P8S_UK6	Colloquia		written exam	
Social competence (no.)	(Ready to)					
1	Recognize the importance of knowledge in solving cognitive and practical problems.	P8S_KK3	Colloquia		written exam	
LEARNING FORMAT – NUMBER OF HOURS						
Semester (no.)	Lectures	Seminars	Lab classes	Internships	others	ECTS
4					15	2
METHODS OF INSTRUCTION						
Colloquia /multimedia presentations						

COURSE CONTENT	
<p>Systematics of groups of harmful insects and those playing a useful role in agricultural crops. Characteristics of selected insect orders. Environmental factors influencing the occurrence of harmful and beneficial entomofauna. Insects in agricultural crops – interactions.</p>	
COURSE ASSESSMENT CRITERIA	
<p>The grade for the course is determined by the number of points obtained in the written exam (35 questions in the form of a multiple choice test and five open questions - a total of 40 questions assessed as follows: correct answer - 1 point/wrong answer - 0 points): dst - 51-60% of the maximum number of points, dst plus - 61-70% , db – 71-80%, db plus – 81-90%, very good – 91-100% of the maximum number of points.</p>	
TOTAL PhD STUDENT WORKLOAD REQUIRED TO ACHIEVE THE INTENDED LEARNING OUTCOMES – NUMBER OF HOURS AND ECTS CREDITS	
Activity	Number of hours
Scheduled course contact hours	15
Other contact hours involving the teacher (consultation hours, examinations)	5
Non-contact hours – student`s own work (preparation for classes or examinations, project, etc.)	30
Total number of hours	50
Total number of ECTS credits	2
INSTRUCTIONAL MATERIALS	
Compulsory literature:	<ol style="list-style-type: none"> 1. Hołubowicz-Kliza G., Mrówczyński M., Starzyński P. 2018. Szkodniki i owady pożyteczne w integrowanej ochronie roślin rolniczych, IUNG-PIB 2. Boczek J., Lewandowski M. 2016. Nauka o szkodnikach roślin uprawnych. Wydawnictwo SGGW. 3. Wiech K. 2014. Pożyteczne owady i inne zwierzęta, Multum.
Complementary literature:	<ol style="list-style-type: none"> 1. Dylewska M., Wiśniowski B. 2003. Żądłowki (Hymenoptera: Aculeata) Ojcowskiego Parku Narodowego. Wyd. OPN, Ojców. 2. Wiśniowski B. 2019. Różnorodność biologiczna naturalnych wrogów szkodników roślin na przykładzie żądłówek z podrodziny Eumeninae. IHAR PIB, Gotkowice (dostęp on-line: https://www.malopolska.pl/file/publications/Zadlowki_EUMENINAE.pdf). 3. Borański M., Teper D. 2017. Atlas pospolitych gatunków pszczół Polski, INHORT, Puławy (PDF dostępny pod adresem - http://www.inhort.pl/files/program_wieloletni/PW_2015_2020_IO/spr_2017/4.2_2017_Atlas_pszczol.pdf)