

Title	Invertebrates in agriculture						
Code	ZDIA39						
Study Program	Postgraduate Interdisciplinary University Programme Environment protection and Nature Conservation						
Semester	III.						
ECTS	5						
Status	elective						
Lecturer	full professor Emilija Raspudić, PhD						
Co-Lecturers							
Requirements for Enrolment	Enrolled postgraduate studies of environmental protection						
Objectives	The study of invertebrates based on the biology and ecology of species, and their behavior in agriculture and the environment						
Learning Outcomes	<ol style="list-style-type: none"> 1. Describe the biology and ecology of important pests of agricultural crops 2. Get to know the beneficial insects, mites and nematodes, which are playing an increasingly important role in combating harmful species to crops 3. Identify the symptoms on plants caused by insects and plant parasitic nematodes 4. Know to apply the most environmentally friendly measures to combat insects and nematodes 5. Distinguish the most important trophic groups of nematodes in the soil and determine the environmental indicators of communities 6. Identify the most important plant parasitic nematodes in crop production in the Republic of Croatia 						
Connection between Learning Outcomes, Curricular and Student Activities	Student Activities	ECTS	Learning Outcomes	Curricular Activities	Methods of Assessment	Credits*	
						min	max
	Attending lectures, literature study	1	1 i 2	Lecture entomology	Oral exam		
	Attending lectures, literature study	1	5	Lecture nematology	Oral exam		
	Literature study, exercise	1	3 i 4	Exercises entomology	Practical work		
	Literature study, exercise	1	6	Exercises nematology	Practical work		
	Preparation for the final exam, studying	1	1-6	Final exam	Oral exam		
Total							
Consultations							
Learning Activities	Lectures		Seminars		Practice		
Hours	10		0		5		
Contents / Teaching Units	Biology and ecology of harmful and beneficial insects in agriculture, Symptoms on plants caused by harmful insects or nematodes, pesticides choice, time and method of application. The principles of integrated pest management. Nematodes life cycle, trophic groups, c-p groups, the role of nematodes in the soil. Nematodes interaction with the environment. Nematodes as bioindicators of the process of succession, disturbance or contaminants in ecosystems, Maturity Index.						
Obligatory Literature	<ol style="list-style-type: none"> 1. Dent, D. 1991: Insect Pest Management. CAB International Wallingford, Oxon, UK. 2. Gullan, P. J., Cranston, P. S. 1994: The Insects – An Outline of Entomology. Chapman & Hall, London, UK. 						

	<ol style="list-style-type: none"> 3. Ivezić, M. 2008. Entomologija (Kukci i ostali štetnici u ratarstvu). Sveučilište Josipa Jurja u Osijeku, Poljoprivredni fakultet u Osijeku. 4. Maceljski, M. 2002. Poljoprivredna entomologija. Zrinski, Čakovec 5. Ivezić M. (2014): Fitonematologija. Sveučilište Josipa Jurja u Osijeku, Poljoprivredni fakultet u Osijeku 6. Oštrec, Lj. 1998. Zoologija – štetne i korisne životinje u poljoprivredi. Zrinski, Čakovec. 7. Bongers, T. 1994. De Nematoden van Nederland. Stichting Uitgeverij Koninklijke, Nederlandse Natuurhistorische Vereniging. Nederland
Recommended literature	<ol style="list-style-type: none"> 1. IOBC Bulletin (International organization for biological and integrated control of noxious animals and plants) 2. Scientific paper - entomology and nematology
Requirements for Aquiring Signature	Regular attendance of lectures and exercises and fulfill their obligations
Type of Exam	oral
Lectures Language	English
Quality Monitoring	The presence and monitoring of the lectures, exercises and on oral exam.