

Subject name	Biological and Biotechnological Methods of Plant Protection	
Subject code	E.1.BIOL.SC.ECTIE.O	
Department	Department of Plant Protection	
Faculty	Faculty of Biotechnology and Horticulture	
Subject supervisor/Lecturer	Dr hab. inż. Maria Pobożniak Dr hab. inż. Jacek Nawrocki	
General information	Teaching period	1 semester / winter or summer
	ECTS credit	7
	Lectures total	15 h
	Lab classes	30 h
Objective and general description	The course deals with the use of biological agents in protecting crops against pests and pathogens. It discusses the different biological methods of plant protection, relationships and mechanisms of the interactions between pests or pathogens and plants. Application of enemies and antagonistic microorganisms in plant protection.	
Lectures 5 x 3 hours	<ol style="list-style-type: none"> 1. Basics of biological control of agrophages. 2. Possibilities for the use of natural enemies of pests and pathogens in the protection of horticultural crops, agricultural and forestry. 3. Significance and possibilities of reproduction of the major antagonists of important pests and diseases: baculoviruses, bacteria, fungi and fungi-like organisms, nematodes, predatory insects, mites and parasitic insects 4. Analogies of insect hormones and pheromones, as a means of biotechnological means 5. Analogies of chitin synthesis inhibitors and other biopesticides 	
Lab classes 7 x 3 + 1 x 7 (excursion)	<ol style="list-style-type: none"> 1. Evaluation the efficiency of biopesticides in crop protection against important pathogens in laboratory conditions. 2. Determine the effectiveness of selected biologically active compounds on major plant pathogens in greenhouse crops. 3. Evaluation of the efficiency of nematodes from family Steinernematidae and fungi from genus <i>Beauveria</i> on major plant pests. 4. Influence of toxic Bt proteins on selected groups of insects. 5. Test of the chitin synthesis inhibitors on some insect species. 6. Presentation, interpretation and discussion of the results of tests carried out. 7. Practical application of biological methods in greenhouse crops (excursion to the modern greenhouse applying biological control) 	
Literature	1. BioControl - Journal of the International Organization for	

	<p>Biological Control (IOBC). Springer</p> <p>2. Rice Mahr S.E., Cloyd R.A., Mahr D.L., Sadof C.S., 2001. Biological control of insects and other pests of greenhouse crops. University of Wisconsin – Extension</p> <p>3. Pal, K. K. and B. Mc Spadden Gardener, 2006. Biological Control of Plant Pathogens. The Plant Health Instructor DOI:10.1094/PHI-A-006-1117-02.</p>
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