

**Biotechnical Faculty / PLANT PROTECTION / BIOCIDES**

<b>Course:</b>	BIOCIDES			
<b>Course ID</b>	<b>Course status</b>	<b>Semester</b>	<b>ECTS credits</b>	<b>Lessons</b> (Lessons+Exercises+Laboratory)
12368	Mandatory	2	4	2+0+2
<b>Programs</b>	PLANT PROTECTION			
<b>Prerequisites</b>	There is NOT conditionality with other subjects.			
<b>Aims</b>	Acquiring basic knowledge about biocides: biological effects, efficiency, phytotoxicity; risk assessment, as well as the strategy of their application.			
<b>Learning outcomes</b>	After passing this exam, the student will be able to (1) Understand the difference between pesticides and biocides; (2) Uses biocides as means of protection; (3) Understands the effects of biocides and their importance in environmental protection; (4) Recognize and use biocidal safe products; (5) Uses acquired knowledge for the purpose of preventive and curative application of biocides and (6) applies the "One health" concept.			
<b>Lecturer / Teaching assistant</b>	assist. prof. Igor Pajović, PhD			
<b>Methodology</b>	Lectures, exercises, independent work, consultations, colloquiums and final exam.			
<b>Plan and program of work</b>				
Preparing week	Preparation and registration of the semester			
I week lectures	Introduction, definition, history of application of pesticides and biocides; Classification of biocides.			
I week exercises	Laboratory work with biocides.			
II week lectures	Non-pesticide substances; physical and chemical properties of biocides; types of formulations and forms of biocides production.			
II week exercises	Substances in biocidal preparation; physical and chemical properties of biocides			
III week lectures	Elements of toxicology, hygiene and epidemiology.			
III week exercises	Types of formulations (advantages/disadvantages) and formulations for special purposes.			
IV week lectures	Application of biocides (importance, divisions and consequences of application).			
IV week exercises	Innovative ways of applying biocides.			
V week lectures	IPM strategies and biocides applications.			
V week exercises	Practices in integral plant protection.			
VI week lectures	Traps usage for surveillance purposes.			
VI week exercises	Methods of catching insects and the Latin quadrant.			
VII week lectures	Monitoring (supervision and control).			
VII week exercises	Colloquium I			
VIII week lectures	Door-to-door, mapping and citizen participation as means of IPM and biocide usage			
VIII week exercises	Remedial colloquium I			
IX week lectures	Bacillus thuringiensis in the environment, ecology and application			
IX week exercises	Application and impact control when applying biocides			
X week lectures	Wolbachia in the environment, ecology and application.			
X week exercises	Examples of Bti and Wolbachia applications.			
XI week lectures	Mark-Release-Recapture and Sterile Insects Techniques.			
XI week exercises	Experiences from SIT on-field experiments in Montenegro.			
XII week lectures	Aquatain AMF monomolecular film in the environment, ecology and application.			
XII week exercises	Colloquium II			
XIII week lectures	Avant-garde models of control using repellents applied through nano-technologies IMAAC.			
XIII week exercises	Remedial colloquium II			
XIV week lectures	New ways of biocides applications. Strategies in protection against harmful organisms (advantages,			

	disadvantages and consequences).					
XIV week exercises	Overall impact of biocides on the environment.					
XV week lectures	Legal regulations on the biocides usage; compliance with EU directives; impact of biocides on the environment and legal control of that impact.					
XV week exercises	Examples of controlling the impact of biocides on the environment.					
<b>Student workload</b>						
<b>Per week</b>				<b>Per semester</b>		
<b>4 credits x 40/30=5 hours and 20 minuts</b> 2 sat(a) theoretical classes 2 sat(a) practical classes 0 excercises <b>1 hour(s) i 20 minuts</b> of independent work, including consultations	Classes and final exam: <b>5 hour(s) i 20 minuts x 16 =85 hour(s) i 20 minuts</b> Necessary preparation before the beginning of the semester (administration, registration, certification): <b>5 hour(s) i 20 minuts x 2 =10 hour(s) i 40 minuts</b> Total workload for the subject: <b>4 x 30=120 hour(s)</b> Additional work for exam preparation in the preparing exam period, including taking the remedial exam from 0 to 30 hours (remaining time from the first two items to the total load for the item) <b>24 hour(s) i 0 minuts</b> Workload structure: <b>85 hour(s) i 20 minuts (cources), 10 hour(s) i 40 minuts (preparation), 24 hour(s) i 0 minuts (additional work)</b>					
<b>Student obligations</b>	Students are required to attend lectures and excercises, do both colloquiums and the final exam. If necessary, consultation one school hour during the week.					
<b>Consultations</b>	Consultation 45 minutes during the week.					
<b>Literature</b>	(1) Biocides (2020). Igor Pajović (scripts); (2) Šovljanski R. Lazić S. (2007). Basics of phytopharmacy; (3) Janjić V. (2004). Pesticides. Additional literature: (4) Šovljanski R., Klokočar Šmit Z., Lazić S. (2002). Practicum in general phytopharmacy. (5) Entwistle et al. (1993). An Environmental Biopesticide: Theory and Practice.					
<b>Examination methods</b>	Class attendance and the activity at class 10 points; - 2 colloquiums of 20 points each = 40 points in total; - final exam maximum 50 points. If cabinet classes are held, colloquiums are worth 25 points each. Grades and points: A (≥ 90 to 100 points); B (≥ 80 to < 90); C (≥ 70 to < 80); D (≥ 60 to < 70); E (≥ 50 to < 60) F < of 50. A passing grade is obtained if at least 50 points are accumulated cumulatively.					
<b>Special remarks</b>						
<b>Comment</b>						
<b>Grade:</b>	F	E	D	C	B	A
<b>Number of points</b>	less than 50 points	greater than or equal to 50 points and less than 60 points	greater than or equal to 60 points and less than 70 points	greater than or equal to 70 points and less than 80 points	greater than or equal to 80 points and less than 90 points	greater than or equal to 90 points