

Course Unit Descriptor

Study Programme: Soil, plant and genetics		
Course Unit Title: Climate change and insects		
Course Unit Code: 19.ZB9007		
Name of Lecturer(s): Aleksandra Ignjatović Čupina, professor; Mihaela Kavran, assistant professor		
Type and Level of Studies: Master Academic Studies		
Course Status (compulsory/elective): Elective		
Semester (winter/summer): winter		
Language of instruction: Serbian and English		
Mode of course unit delivery (face-to-face/distance learning): face to face (distance learning, optionally)		
Number of ECTS Allocated: 5		
Prerequisites: none		
Course Aims: Acquiring knowledge and understanding about the impact of climate change on populations of harmful insects in agriculture, veterinary medicine and public health and strategies to mitigate the effects of climate change on the occurrence and spread of native and allochthonous invasive pest species.		
Learning Outcomes: Acquiring knowledge and skills for assessment of the impact of climate change on populations of autochthonous and allochthonous invasive insect species, risk assessment, implementation of adequate control measures and mitigation of harmful consequences.		
Syllabus: <i>Theory</i> Ecological factors and insects, influence of abiotic, biotic and anthropogenic factors on insect populations, preferences and adaptations; Biogeographic regions and native habitats; Native and alien invasive pest species in agriculture, veterinary medicine and public health. Ways of introducing and spreading invasive species into new habitats; Natural and anthropogenic habitats; Climate change and adaptations of insect populations. Monitoring ecological factors and insect populations. Assessments of risks due to climate change; Case studies. <i>Practice</i> Identification of the most important invasive species in Serbia and Europe. Surveillance and databases. Elaboration of selected examples.		
Required Reading: 1. Mihailović D. Ed, (2012): Essays on Fundamental and Applied Environmental Topics. Nova Science Publishers, 353 pp 2. P. Ferreira C.P. & Godoy W.A.C.(2014): Ecological Modelling Applied to Entomology. Springer International Publishing Switzerland. 262 pp. 3. Schaffner F., Bellini R., Petrić D., & Scholte E.-J. (2012): <i>Guidelines for the surveillance of invasive mosquitoes</i> , Technical report, Avia-GIS, Zoersel, Belgium, Feb. 2012, (released as Guidelines for the surveillance of invasive mosquitoes in Europe. European Centre for Disease Prevention and Control, Stockholm, Sweden ISBN 978-92-9193-378-5, doi 10.2900/61134) 44 pp. + Annexes 72 pp. 4. Roques A., Kenis M., Lees D., Lopez-Vaamonde C., Rabitsch W., Rasplus JY., Roy D.B.(2010): Alien terrestrial arthropods of Europe. <i>BioRisk</i> 4(1) (Special Issue). Pensoft, Sofia, Moscow. 552 pp. 5. Takken W., Knols B.G.J. (2010): Emerging pests and vector-borne diseases in Europe. Ecology and control of vector-borne diseases Volume 1. Wageningen Academic Publishers, Netherlands. 499 pp.		
Weekly Contact Hours: 5 (75 in total)	Lectures: 3 (45 in total)	Practical work: 2 (30 in total)

Teaching Methods:

Teaching is conducted in the form of PPT presentations and use of other didactic tools, discussion on related topics, visual demonstrations in the laboratory , use of entomological keys and binocular microscopes.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	Final exam	points
Active class participation		written exam	50
Practical work	25	oral exam	
Preliminary exam(s)		
Seminar(s)	25		

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.