

Study Programme : Master of Science in Teaching Biology			
Degree level:			
Course Title: Evolutionary Conservation Biology			
Professor: dr Vesna Milankov, dr Ljubinka Francuski Marčetić			
Subject: MPB40			
Elective Course			
Number of ECTS: 6			
Prerequisites:			
Course Objective: Evolutionary conservation biology is an integrative approach to managing species in conjunction with ecological interactions and evolutionary processes. The main challenge for evolutionary conservation biology is to identify strategies for managing genetic and ecological conditions such as to ensure the continued operation of favorable evolutionary processes in natural systems embedded in a rapidly changing world.			
Course Outcome: The course provides the students with the appropriate principles and tools to tackle the dynamics of adaptive trait substitutions and the evolutionary implications of complex ecological settings. The course provides the conceptual basis for understanding the genetics of biological problems in conservation			
Course Content: <i>Theoretical part</i> Introduction: Demography, Genetics, and Ecology in Conservation Biology, Toward an Evolutionary Conservation Biology, Environmental Challenges and Evolutionary Responses. Genetics and conservation. Theory of Extinction: From individual interactions to population viability, Spatial dimensions of population viability. The pace of adaptive responses to environmental change. Responses to environmental change: Adaptation or extinction, Empirical evidence for rapid evolution, Genetic variability and life-history evolution, Environmental stress and Quantitative genetic variation. Genetic and ecological bases of adaptive responses: Fixation of new mutations in small populations, Quantitative-genetic models and changing environments, Adaptive dynamics and evolving biodiversity. Spatial Structure: Genetic structure in heterogeneous environments, Adaptive responses to landscape disturbances. Hybridization: Natural and antropogenic hybridization. <i>Practical part</i> Units of Conservation: Systematics and taxonomy, Phylogeny reconstruction. Use of molecular markers in recognition of evolutionarily conservation units. Integrating genetic, phenotypic, and environmental information. Genetic Variation in Natural Populations. Metapopulations and fragmentation. Population Subdivision: F and Q statistics. Genetics and conservation: wild populations, captive populations. Conservation Breeding and Restoration. Forensic and Management Applications of Genetic Identification.			
Reading List: 1. Ferriere, R., i sar. (2004) Evolutionary Conservation Biology. Cambridge University Press. 2. Alndorf, F.W., Luikart, G. (2006) Conservation and the genetics of populations. Willey-Blackwell. 3. Milankov, V. (2007) Osnovi konzervacione biologije I. Skripta.			
Total hours:			
Lectures: 2	Practicals: 2	Other:	Student research work:
Methods of instruction: Video beam and overhead presentation			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	5	Practical exam	
Active participation in practicals	5	Oral exam	60
Test(s) or	30		
Pre-exam testing			
Remark:			