

Course Unit Descriptor

Study Programme: PhD in Biological Sciences			
Course Unit Title: Evolution and Phenotypic Plasticity			
Course Unit Code: DNB025			
Name of Lecturer(s): Dr Jasmina Ludoški			
Type and Level of Studies: PhD Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 15			
Prerequisites: None			
Course Aims: The aim of the course Evolution and phenotypic plasticity is to study the phenomenon of phenotypic plasticity, mechanisms and processes that lead and shape it, and its evolutionary significance. The course integrates knowledge of ecological genetics, developmental biology and evolutionary theory to understand how the interaction of genetic and environmental factors shaped organisms.			
Learning Outcomes: The acquisition of knowledge and critical understanding of the process of adaptive evolution of phenotypes.			
Syllabus: <i>Theory</i> Phenotypic plasticity: the concept, reaction norm; Studying and understanding plasticity: empirical approach; Historical overview of phenotypic plasticity studies; The genetics of phenotypic plasticity: genetic variation of plasticity, genetic constraints, plasticity and heterozygosity, plasticity and developmental (in)stability, canalization and homeostasis; Molecular biology of phenotypic plasticity: molecular basis of phenotypic plasticity, concept of plasticity genes; Developmental biology of phenotypic plasticity: mechanisms, adaptive importance; Ecology of phenotypic plasticity: phenotypic plasticity as an adaptive strategy, adaptive phenotypic plasticity- empirical studies; Behavior and phenotypic plasticity: theoretical framework, case studies; Evolution of phenotypic plasticity; Theoretical biology of phenotypic plasticity: approaches to the modeling of genotype-environment interactions; Phenotypic plasticity as a central concept in evolutionary biology. <i>Practice</i> Phenotypic variation in selected groups of animals and plants- the examples.			
Required Reading: 1. Pigliucci, M (2001) Phenotypic plasticity: beyond nature and nurture. The Johns Hopkins University Press. 2. scientific papers			
Weekly Contact Hours:	Lectures: 5	Practical work: 0 + 5	
Teaching Methods: oral presentation, study of scientific papers			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points

Active class participation		written exam	
Practical work		oral exam	70
Preliminary exam(s)		
Seminar(s)	30		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			