

Study Programme: BSC in Ecology			
Degree level: Bachelor degree			
Course Title: Basics of Evolutionary Biology			
Professor: Dr Jasmina Ludoški			
Required/Elective Course: Required			
Number of ECTS: 5			
Prerequisites: Genetics and genotoxicology			
Course Objective: The objective of the course Introduction to Evolutionary Biology is to introduce students with the concept of evolutionary biology, organisation and adaptive importance of genetic variability, the forces responsible for evolutionary change and what these processes have produced, the origin of life on Earth, and evolution of living life.			
Course Outcome: This course is designed to provide the student with a basic knowledge related to processes and mechanisms that generate and maintain genetic diversity.			
Course Content:			
<i>Theoretical part</i>			
Concepts of Evolutionary biology; Darwinism and the Fact of Evolution; Evolutionary theories; Methods of evolutionary analysis: experimental approaches, the comparative method, reconstructing history; Mechanisms of evolutionary change: natural selection, genetic drift and limited population size, sexual selection, migration and population structure, gene flow, mutation, gene recombination, the adaptive landscape; Mechanisms of speciation: Species concepts, Mechanisms of reproductive isolation, Mechanisms of divergence; Agents of selection and the nature of adaptations: Phenotypic and evolutionary plasticity, Ecological context of evolutionary changes; Coevolution; The origin of life and Precambrian evolution; The Cambrian explosion and beyond; Rates of evolution; Macroevolutionary changes; Mass extinction and their consequences; Human evolution.			
<i>Practical part</i>			
Population: the Hardy-Weinberg equilibrium, linkage equilibrium, linkage disequilibrium and evolution; Population fragmentation: causes; Phenotypic variability: adaptive importance; Genetic variability; Evolutionary change in nucleotide sequences; Evolution by gene duplication and domain shuffling; Gene families; Multiple-copy coding sequences; Homeobox genes; Evolution by transposition and horizontal transfer; Genome organization and evolution.			
Reading List:			
1. Milankov, V. (2007): Biološka evolucija. PMF, Novi Sad.			
2. Tucić, N. (2003): Evolucionarna biologija, 2. dopunjeno i promenjeno izdanje. NNK International, Beograd.			
3. Tucić, N. (1999): Evolucija, čovek i društvo. Dosije i Akademska alternativna mreža, Beograd.			
4. Tucić, N. (1987): Uvod u teoriju evolucije. Zavod za udžbenike i nastavna sredstva, Beograd.			
Total hours:			
Lectures: 3	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		Practical exam	
Active participation in practicals		Oral exam	70
Test(s) or	30		
Pre-exam testing			