

<b>Study program: BSc Ecology</b>			
<b>Study level: Undergraduate studies</b>			
<b>Course title: Genetics and genotoxicology</b>			
<b>Course code: OE010</b>			
<b>Teacher: Assis. Prof. Dr. Nevena Veličković</b>			
<b>Course status: obligatory</b>			
<b>ECTS: 7</b>			
<b>Requirements:</b>			
<b>Course objectives:</b> The aim of this course is to introduce students to the principle concepts of Mendelian and nonmendelian modes of inheritance in plants and animals, as well as various agents that damages the genetic information.			
<b>Learning outcomes</b> After successful fulfilling of pre-exam and exam obligations student can explain the key concepts of heredity, solve transmission genetics problems and make predictions about inheritance of genetic traits.			
<b>Syllabus</b> <i>Theoretical instruction</i> Morphology and molecular structure of the chromosomes. The content and the organisation of eukaryotic genome. Molecular structure and replication of genetic material. Gene transcription and translation. Reproduction and chromosome transmission. Cell division and gametogenesis. Patterns of inheritance. Extensions of Mendelian inheritance. Gene mutation and DNA repair. Recombinations. Variation in chromosome structure and number. Population genetics. Molecular markers.  <i>Teaching laboratory</i> Karyotypes. Mitosis, Meiosis. Mendelian inheritance. Gene Interactions. Sex determination. Pedigree analyses. Crossing over. Variation in number and structure of chromosomes. The Hardy-Weinberg Equilibrium. Factors that change allele frequencies in populations. Inbreeding. Analyses of population genetic structure with molecular markers.			
<b>Literature</b> Ђелић Н., Станимировић З. Принципи генетике. Елит Медица, Београд, 2004 Маринковић Д., Туцић Н., Кекић В. Генетика. Научна књига, Беорад, 1991. Диклић В. Косановић М., Николиш Ј. Биологија са хуманом генетиком, Графопан, Београд, 2001. Вапа Љ, Обрехт Д. Генетика кроз примере и задатке, ауторизована скрипта, ПМФ, Нови Сад, 2005. Вапа Љ, Радовић Д. Збирка задатака из генетике, Универзитет у Новом Саду, 1995. Вапа Љ, Обрехт Д, Ђан М. Практикум из хумане генетике. Медицински факултет Нови Сад, 2012.			
<b>Weekly teaching load</b>		Lectures: 3	Teaching laboratory: 2
<b>Teaching methods</b> lectures, practical lectures, tuition			
<b>Evaluation of knowledge (maximum score 100)</b>			
<b>Pre-exam obligation</b>	points	<b>Final exam</b>	points
Student engagement in lectures		Written exam	
Seminar		Oral exam	60
Tests	30		
Practical laboratory	10		