

Study Programme : BSc in Biology			
Degree level: Bachelor degree			
Course Title: Genetics of Population			
Professor: Mihajla Djan			
Required/Elective Course: elective course			
Number of ECTS: 6			
Prerequisites: -			
Course Objective: The course objective is to extend knowledge about genetic information transmission in population and to adopt methodology for determination of population genetic variability. Student gets informed with importance and conservation of genetic diversity, and with main principles of genetic management.			
Course Outcome: After successfully realized pre-exam and exam obligations student is able to: <ul style="list-style-type: none"> - explain methodology of basic molecular genetic techniques used in population genetics - understand characteristics of different molecular markers, distinguish their advantages and disadvantages, that depend on type of genetic analysis in population - apply different parameters for genetic variability estimation and population divergence - clearly define importance of genetic diversity and observe consequences of its loss in natural and captive populations - use different web sources and computer packages in the field of population genetics 			
Course Content: <i>Theoretical part</i> Determination and measurement of genetic variability. Usage of protein and molecular markers in determination of genetic structure in natural populations: heterozygosity, polymorphism, genetic identity and distance. Restriction fragment length polymorphism, PCR based markers. Usage of computer packages in population genetics, web sources. Importance of genetic diversity. Genetic differences among species. Loss of genetic diversity and its consequences. Levels of genetic diversity. Conservation genetics. Balanced selection. Genetic management in natural and captive populations. Forensic methods in population and conservation genetics. <i>Practical part</i> Electrophoregram and zymogram analysis. Heterozygosity, polymorphism, effective number of alleles. Genetic identity and distance. Cluster analysis. RFLP profile analysis in population genetics. Application of SSR markers in population genetics. Usage of statistical packages in population genetics: BIOSYS, PHYLIP, REAP, GDA, POPSTRUT, TREEVIEW, MEGA, ClustalX.			
Reading List: <ol style="list-style-type: none"> 1. Borojevic K. Genes and population. Faculty of Sciences, Novi Sad, 1991. (in Serbian) 2. Vapa Lj, Obreht D. Genetics through examples and problems. Extended handouts, Faculty of Sciences, Novi Sad, 2005. (in Serbian) 3. Vapa Lj, Radovic D. Problems in Genetics. University of Novi Sad, 1995. (in Serbian) 4. Frankham R., Ballou JO, Briscoe DA. Introduction to Conservation Genetics. Cambridge University Press, 2002. 5. Hartl DL. A Primer of Population Genetics. Sinauer Associates, Inc., Sunderland, 1988. 			
Total hours:			
Lectures: 2	Practicals: 2	Other:	Student research work:
Methods of instruction: Theoretical lectures, computational practical lessons, tutorial			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	5	Practical exam	60
Active participation in practicals	5	Oral exam	-
Test(s) or			
Pre-exam testing	30		