Study program: BSc Biology

Study level: Undergraduate studies

Course title: Population genetics

Course code: OB020

Teacher: Assoc. Prof. Dr. Mihajla Đan , Assis. Prof. Dr. Nevena Veličković

Course status: elective

ECTS: 6

Requirements:

Course objectives:
The aim of this course is to introduce students to the mechanisms of transmissions of genetic informations at the population level.

Learning outcomes
After successful fulfilling of pre-exam and exam obligations student can explain genetic variation within populations and how genetic structure of populations is influenced by mutation, migration, genetic drift and natural selection.

Syllabus
Theoretical instruction
Genetic variability of natural populations. The Hardy-Weinberg equilibrium and factors that change allele frequences in natural populations. Protein markers in populations genetics. Molecular markers (RFLP, PCR based markers, RAPD, AFLP). Extranuclear molecular markers. Population genomics.

Practical laboratory
Calculation of genetic variability parameters. Hardy-Weinberg equlibrium and deviation. Phylogenetic trees construction. Application of SSR molecular markers in population genetics. DNA sequence editing and analysis. Introduction to computer software: ARLEQUIN, BioEdit, MEGA, STRUCTURE, MrBAyes.

Literature
Ђан М., Величковић Н. Молекуларни маркери у популационој генетици. Ауторизована скрипта, 2017.
Анђелковић М., Стаменковић-Радак М. Гени у популацијама. Алта Нова, Београд, 2013.
Бородевић К. Гени и популација, ПМФ, Нови Сад, 1991.
Frankham R., Ballou JO, Briscoe DA. Introduction to Conservation Genetics. Cambridge University Press, 2002.

Weekly teaching load	Lectures: 2	Teaching laboratory**:** 2

Teaching methods
lectures, computer labs, tuition

Evaluation of knowledge (maximum score 100)

Pre-exam obligation	points	**Final exam**	points
Student engagement in lectures	5	Written exam	
Seminar		Oral exam	60
Tests	30		
Practical laboratory	5		