Study program: BSc Biology

Study level: Undergraduate studies

Course title: Genetics

Course code: OB016

Teacher: Assoc. Prof. Dr. Mihajla Đan

Course status: obligatory

ECTS:5

Requirements:

Course objectives:

The aim of this course is to introduce students to the principle concepts of Mendelian and nonmendelian modes of inheritance in plants and animals.

Learning outcomes

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.

Syllabus

Theoretical instruction

Morphology and molecular structure of the chromosomes. The content and the organisation of eukaryotic genome. Molecular structure and replication of genetic material. Reproduction and chromosome transmission. Cell division and gametogenesis. Patterns of inheritance. Extensions of Mendelian inheritance. Gene mutation and DNA repair. Linkage and genetic mapping. Variation in chromosome structure and number. Population genetics. Molecular markers. Quantitative genetics.

Teaching laboratory

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. Quantitative traits and polygenic inheritance. Inbreeding. Analyses of population genetic structure with molecular markers.

Literature

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.

Weekly teaching load	Lectures: 3	Teaching laboratory**:** 3

Teaching methods

lectures, practical lectures, tuition

Evaluation of knowledge (maximum score 100)

Pre-exam obligation	points	**Final exam**	points
Student engagement in lectures		Written exam	
Seminar		Oral exam	up to 65
Tests	up to 30		
Practical laboratory	up to 5		