Study program: BSc Biology

Study level: Undergraduate studies

Course title: Molecular genetics

Course code: OB035

Teacher: Assis. Prof. Dr. Nevena Veličković

Course status: obligatory

ECTS: 7

Requirements:

Course objectives:

The aim of this course is to introduce students to the structure and function of genes at the molecular level, and epigenetics modifications and its importance in gene regulation.

Learning outcomes

After successful fulfilling of pre-exam and exam obligations student can explain the key concepts of molecular structure and function of genes, as well as to understand and apply basic molecular laboratory techniques.

Syllabus

Theoretical instruction

Chromatin – molecular organisation and function. Eukaryotic transcription regulation: mechanisms of action of activators and repressors. Chromatin remodeling. Epigenetic modifications and effects. RNA and Rna interference mechanisms. Cell cycle and it's regulation. Transposition at the molecular level and transposable elements. Mutagenesis. Recombinant DNA technology.

Practical laboratory

DNA extraction. DNA quantification and purity. Primer design. Polymerase chain reaction. Gel electrophoresis. DNA sequencing.

Literature

Обрехт Д., Ђан М., Танурџић М. Молекуларна генетика. Ауторизована скрипта, 2014.
Видовић В., Ступар М. Молекулска генетика. Атеље, Сремска Каменица, Србија. 2010.
Stachan T, Read AP. Human Molecular Genetics 4 Garland Publishing, UK, 2011.
Brown T.A. Genomes 2, Bios Scientific Publishers, Ltd., UK, 2002.
Lewin B. Genes VII, Oxford University Press, UK, 1997.

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

Teaching methods

lectures, laboratory work, tuition

Evaluation of knowledge (maximum score 100)

Pre-exam obligation	points	**Final exam**	points
Student engagement in lectures	2	Written exam	
Seminar		Oral exam	60
Tests	30		
Practical laboratory	8		