Level: Specialist

Course title: Structure and function of nucleic acids- advanced course (SBH-605)

Status: Elective

ECTS: 6

Requirements: None

Learning objectives

Students will study the selected chapters from the areas which they studied during bachelor and graduate studies, but which are related to the topic of the master thesis. Students will become familiar with original scientific literature and develop the skills needed for solving research problems.

Learning outcomes

Obtaining theoretical knowledge of the structure and function of nucleic acids, biologically important macromolecules, which is essential for understanding the physiology, biochemistry, biotechnology and ecology. Acquired theoretical and experimental knowledge will enable students to find appropriate employment in different development, scientific research laboratories or to continue their doctoral studies in biochemistry or related disciplines.

Syllabus

Theoretical instructions

The structure and topology of nucleic acids; Functions of DNA: replication, transcription, the reverse transcription, recombination. Post transcriptional processing of RNA. The molecular mechanisms of mutation, DNA repair. Regulation of gene expression in prokaryotes and eukaryotes. Restriction enzymes and DNA fragmentation, vectors for cloning DNA fragments, DNA amplification of the DNA polymerase chain reaction (PCR), sequencing, DNA cloning, characterization and expression of cloned DNA. Transgenic organisms, a DNA chip. The application of recombinant DNA technology in medicine, agriculture, forensics, industry

Weekly teaching load				Other: /
Lectures: 2	Exercises: 2	Other forms of teaching:	Student research: /	