

Study Program: Biology				
Type and level of studies: Bachelor studies				
<b>Course name:</b> The basis of molecular biology				
<b>Lecturer:</b> Branković S. Slavko				
Status: Compulsory				
ECTS: 6				
Attendance Prerequisites:				
<b>Course aims</b> The aim of the course is to provide students with basic theoretical knowledge and experimental experience in the field of molecular biology as well as to get acquainted with relevant contemporary techniques used in this field.				
<b>Course outcome</b> By the end of the course, the students should have obtained basic knowledge of this area, which would help them attend more demanding courses in their further education and enable them to engage in research in a number of different laboratories and institutes.				
<b>Course content</b> <i>Theoretical part:</i> Introduction to the concept of the molecular biology, its history and the paths of its development. Structure and function of nucleic acids. Primary and higher levels of protein structure and their biological activity. Chromatin proteins, DNA packaging and chromosome organization. Step of DNA replication. Mechanisms of genome maintaining, mutability and DNA reparation. Coding of genetic information (genetic code). Transfer of genetic information- transcription and translation. Basic mechanisms of gene expression control, regulatory proteins and their binding motifs. Molecular mechanism of cell differentiation, the basics of cell cycle regulation, and programmed death. Basic techniques for protein, DNA and RNA manipulation. <i>Practical Part: Exercises</i> During laboratory exercises, the students should learn the basic techniques for isolation, purification, identification, quantification and manipulation of nucleic acids and proteins.				
<b>Literature</b> 1. Г. Матић (2004) <i>Основи молекуларне биологије</i> , Биолошки факултет, Београд; 2. Alberts, Johnson, Lewis, Raff, Roberts & Walter (2002) <i>Molecular biology of the cell</i> , Garland Science, New York; (нека поглавља).				
<b>Number of active classes</b>				Other classes
Lectures: 2	Practical classes: 2	Other forms of teaching:	Students' research work	
<b>Teaching methods</b> Lectures and laboratory exercises.				
<b>Assessment (maximum 100 points)</b>				
<b>Course assignments</b>	<b>points</b>	<b>Final exam</b>		<b>points</b>
activity during lectures	5	written exam		30
practical classes	15	oral exam		40
Term test/s	10			
<b>Total</b>	30			70