

Табела 5.2. Course unit description

Study program: MOLECULAR BIOLOGY			
Type and level of study: Master academic studies – II level of studies			
Course title: BMB210 Molecular Genetics			
Teacher in charge: Snežana M, Stanić, Ph.D.			
Language of instruction: English			
Number of ECTS: 6			
Semester: Summer Semester			
Course unit objective Introduction to the structure, function and mechanisms of variability of the genetic material. Acquiring knowledge on the phenotypic consequences of the changed structure of gene and methods for the detection of various types of gene mutations. Understanding modern methods of manipulation of genetic material.			
Learning outcomes of course unit Students will acquire skills and insight into the mechanisms of creation of genetic diversity, as well as the ability to use the methods of molecular genetics in detecting of variations at the DNA level.			
Course unit contents Theoretical classes: The organization and structure of the genome. Correlation of gene expression and phenotype. Methods in Molecular genetics - chronological overview. Changes in the structure of the genetic material. The effect of mutations on the quality and quantity of protein products (structural, transport and regulatory). Amplification of DNA using PCR and detection of variations at the DNA level. Detection of heterozygous deletions and duplications. Techniques for the identification of transcription factors. "Cell genome keeper" – p53: correlation of gene mutation and certain cancers. SNP genotyping. Minisatellites and polymorphism linked to microsatellites (SSLP). Variations of genes responsible for quantitative traits. Methods for the manipulation of the hereditary material. Genetic conditionality of apoptosis and necrosis. Derogation of genetic principles: molecular biology of prions and prion diseases. Practical classes: Practical classes is organized in the form of experimental classes in the laboratory and demonstration classes harmonized with the program of theoretical classes			
Literature Peter J Russell, Pearson Benjamin Cummings. Genetics: A Molecular Approach, 2006. Graham R Taylor, Ian NM Day, Wilez-Liss. Guide to Mutation detection, 2005.			
Number of active teaching hours			Other classes
Lectures:	Practice:	Other forms of classes: consultative	
Teaching methods: consultative			
Examination methods (maximum 100 points)			
Exam prerequisites	points	Final exam	
		No. of points:	
Student's activity during lectures		oral examination	
practical classes/tests		written examination	
colloquium	30		
Seminars	20		
Grading system			
Grade	No. of points	Description	Grade
10	91-100	Excellent	10
9	81-90	Exceptionally good	9
8	71-80	Very good	8
7	61-70	Good	7
6	51-60	Passing	6
5	50	Failing	5