

Course Unit Descriptor

Study Programme: BSc in Biology			
Course Unit Title: Molecular biology 1			
Course Unit Code: OB014			
Name of Lecturer(s): Prof. Jelena Purać, PhD			
Type and Level of Studies: Bachelor's studies			
Course status (compulsory/elective): compulsory			
Semester (winter/summer): summer			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 6			
Requirements: -			
Course Aims: This course provides a comprehensive overview of the key concepts in molecular biology. Students are also introduced to the basic experimental approaches used for the study of nucleic acids.			
Learning Outcomes: At the end of this course, students will be able to understand how biological information is encoded in the structure of the genetic molecule, DNA and to explain the flow of genetic information in living systems. Students will be able to understand basic experimental techniques of molecular biology which can help them to carry out laboratory experiments. This course will prepare students for the more specific courses in the field of cell and molecular biology in their further studies.			
Syllabus: <i>Theoretical part</i> Topics to be covered include brief history of molecular biology from its origin to the rise of biotechnology, nucleic acid structure and function, chromosome structure and remodeling, genome structure, DNA replication, transcription, translation, genetic code, and regulation of gene expression in prokaryotes. The whole course is based on the molecular biology of prokaryotes with emphasized differences between prokaryotes and eukaryotes. Extended topics to be covered include basic experimental methods used for nucleic acids analysis and recombinant DNA technology. <i>Practical part</i> Isolation and purification of nucleic acids from different starting materials. Optical methods for qualitative and quantitative nucleic acid analysis, agarose electrophoresis of nucleic acids and restriction endonuclease digestion of DNA.			
Required Reading: Gordana Matić (2004) Osnovi molekularne biologije, Biološki fakultet, Beograd James D. Watson, Tania A. Baker, Stephen P. Bell, Alexander Gann, Michael Levine, Richard Losick (2008) Molecular Biology of the Gene, 6th Edition, Pearson education			
Weekly Contact Hours:		Lectures: 3	Practical lectures: 3
Teaching methods			
Evaluation of knowledge (maximum score 100)			
Pre-exam obligation	Points	Final exam	Points
Test from practical part	10	Oral exam	15
Three semestral tests	75		