

Study Programme :			
Degree level:			
Course Title: Essentials of molecular biology			
Professor: dr Jelena Purać, dr Željko Popović			
Required Course: required (core course)			
Number of ECTS:			
Prerequisites:			
Course Objective: 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.			
Course Outcome: 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.			
Course Content: <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 emphasised 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 material. Optical methods for qualitative and quantitative nucleic acid analysis (UV spectrophotometry, Bial's test for RNA determination, diphenylamine reagent for DNA determination), agarose electrophoresis of nucleic acids and restriction endonuclease digestion of DNA.			
Reading List: Gordana Matić (2004) <i>Osnovi molekularne biologije</i> , Biološki fakultet, Beograd James D. Watson, Tania A. Baker, Stephen P. Bell, Alexander Gann, Michael Levine, Richard Losick (2008) <i>Molecular Biology of the Gene</i> , 6th Edition, Pearson education			
Total hours:			
Lectures: 3	Practicals: 2	Other:	Student research work:
Methods of instruction:			
Assessment (maximum number of points 100)			
Requirements	points	Final exam	points
Active participation in lectures	5	Practical exam	25
Active participation in practicals	10	Oral exam	60
Test(s) or			
Pre-exam testing			
Remark:			