

<b>Study program: MSc Biology</b>			
<b>Study level: Master's studies</b>			
<b>Course title: Genomics</b>			
<b>Course code: MB034</b>			
<b>Teacher: Assis. Prof. Dr. Nevena Veličković</b>			
<b>Course status: elective</b>			
<b>ECTS:7</b>			
<b>Requirements:</b>			
<b>Course objectives:</b> The aim of this course is to introduce students to genome sequencing and bioinformatic approaches to genome analyses.			
<b>Learning outcomes</b> After successful fulfilling of pre-exam and exam obligations student can explain the key concepts of genomics and gain skills in applying bioinformatic tools in genome analyses.			
<b>Syllabus</b> <i>Theoretical instruction</i> Introduction to Genomics. Mapping genomes. The Human genome project. Minimal genome. Genome sequencing. Genome annotation. Gene expression and transcriptomics. SNPs and variation. Applications of SNP technology. SNP genotyping. Integrative genomics.  <i>Computer laboratory</i> Tools and databases available for bioinformatic analysis. NGS technologies. Sequence reads archive. Data gathering and quality assesement. Genome assembly algorithms. Estimation of draft genome sequence quality.			
<b>Literature</b> Gibson G., Spencer M.V. A Primer of Genome Science. Sinauer Associates, Inc. Publ. USA, 2004. Mike S., Elawarapu R. Genomics: Essential Methods, John Wiley & Sons, Ltd. UK, 2011. Deonier R.C., Tavaré S., Waterman M.S. Computational Genome Analysis: An Introduction, Springer, 2005. Primose S.B., Twyman R.M. Principles of Genome Analysis and Genomics. Blackwell Publ. UK, 2003. Barnes M.R., Gray I.C. Bioinformatics for geneticists. John Willey & Sons Ltd. UK, 2003.			
<b>Weekly teaching load</b>		Lectures: 2	Teaching laboratory: 2+4
<b>Teaching methods</b> lectures, practical lectures, computer labs, tuition			
<b>Evaluation of knowledge (maximum score 100)</b>			
<b>Pre-exam obligation</b>	points	<b>Final exam</b>	points
Student engagement in lectures		Written exam	
Seminar	Up to 40	Oral exam	up to 50
Tests			
Practical laboratory	up to 10		