

1.	Course	Bioinformatics			
2.	Code	INF-S4			
3.	Study programme	Informatics			
4.	Study programme organized by	Faculty of Computer Science and Engineering			
5.	Cycle	Third - PhD			
6.	Academic year / semester winter/summer/elective	first/second	7.	ECTS credits	6
8.	Teacher	Prof. D-r Ana Madevska Bogdanova, Prof. D-r Nevena Ackovska, Prof. D-r Saso Panov			
9.	Prerequisites	None			
10.	<p>Course programme goals (competences):</p> <p>The goal of the course is to enable the students a study in molecular biology concerning the functioning of the cell. The students should understand the gene and protein structure, to learn to search, visualize and analyze the protein structures, to learn to use the UniProt data bases and learn different methods for protein classification</p>				
11.	<p>Course syllabus:</p> <p>Genome data bases, sequence similarities, DNA sequence analysis, RNA and prediction of secondary structure, use of Markov chains, use of dynamic programming (global and local alignment), analysis of microarrays data, evolutionary aspects of molecular biology</p>				
12.	<p>Teaching methods:</p> <p>Classes supported with slide presentations, interactive teaching, lab equipment and other software packages, teamwork, case studies, invited guest lecturers, presentations of project works, e-learning materials, forums and consultations</p>				
13.	Total fund of work hours	7,5 ECTS x 30 h = 225 h			
14.	Available hours distribution	45+30+150 = 225			
15.	Teaching activities	15.1.	Theoretical classes	45 h	
		15.2.	Practical classes (labs, exercises), seminars, team work	30 h	
16.	Other activities	16.1.	Project tasks	50 h	
		16.2.	Self study	50 h	
		16.3.	Homework	50 h	
17.	Grading				
	17.1.	Tests	40 points		
	17.2.	Seminar work/ project (presentation: written and oral)	50 points		
	17.3.	Active participation	10 points		
18.	Grading criteria (points/grade)	to 59 points		5 (five) (F)	
		from 60 to 68 points		6 (six) (E)	
		from 69 to 76 points		7 (seven) (D)	
		from 77 to 84 points		8 (eight) (C)	

		from 85 to 92 points	9 (nine) (B)
		from 93 to 100 points	10 (ten) (A)
19.	Conditions for attending the final exam	Successful completion of activities 15.1 and 15.2	
20.	Language	Macedonian or English	
21.	Quality assessment	Internal evaluation and student pools	

22.	Literature				
	Compulsory				
	No.	Author	Title	Publisher	Year
22.1.	1.	J. Pevsner	"Bioinformatics and Functional Genomics"	Wiley Blackwell	2009
	2.	C. Bessant, Shadforth, I., Oakley, D	"Building Bioinformatics Solutions – Perl, R"	Oxford University Press	2009
	3.	Watson, Baker, Bell, Gann, Levine, Losick,	"Molecular Biology of the gene" 7- th Edition	Pearson Internationsl Edition,	2013
	Additional				
22.2.	No.	Author	Title	Publisher	Year