1.	Course title	**Mathematical models in Bioinformatics**		
2.	Course code	InIS-I-01		
3.	Study program	**Intelligent Systems Engineering**		
4.	Unit offering the course	**FCSE**		
5.	Undergraduate/master/PhD	**Master**		
6.	Year/semester 1/summer/elective	7. ECTS: **6**		
8.	Teacher(s)	prof. Ana Madevska Bogdanova, prof. Zaneta Popeska		
9.	Course prerequisites	None		
10.	Goals (competences): To enable the students to understand the most important statistical modelling methods. The students will be able to understand real life problem, to model it with the most suitable technique, to implement it and interpret the results.			
11.	Course content: Descriptive statistics and data visualization, Important probability distributions and statistics of random variables. Evaluation and testing. Linear models, Cluster analysis and decision trees. Ensemble of classification methods, Markov models.			
12.	Teaching methods: Lectures supported by slide presentations, interactive lectures, trainings (using lab equipment and software packages), team work, case studies, invited guests and lectures, individual practical assignments presentations, seminar paper, e-learning (forums, consultations).			
13.	Total available time	6 ECTS x 30 hours = 180 hours		
14.	Distribution of the available time	30+30+40+40+40 = 180 hours		
15.	Teaching activities	15.1.	Lectures	30 hours
		15.2.	Training (labs, problem solving), seminar and team work	30 hours
16.	Other activities	16.1.	Project work	40 hours
		16.2.	Self study	40 hours
		16.3.	Home work	40 hours
17.	Grading			
	17.1.	Tests		20 points
	17.2.	Seminar work/project (written or oral presentation)		50 points
	17.3.	Active participation		30 points
18.	Grading criteria		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.	Final exam prerequisites			Successfully completed activities 15.1 and 15.2		
20.	Course language			Macedonian and English		
21.	Quality assurance methods			Internal evaluation and student questionnaires		
22.	Literature					
	22.1.	Compulsory				
		No.	Authors	Title	Publisher	Year
		1.	Wim P. Krijnen	Applied Statistics for Bioinformatics using R	Hanze University Institute for Life Science and Technology,Groningen	2009
		2.	Subhash Sharma	Applied Multivariate techniques	John Wiley & Sons, Inc	1996
		3.	Douglas C. Montgomery	Applied Statistics and Probability for Engineers	Wiley	2010
	22.2.	Additional				
		No.	Authors	Title	Publisher	Year
		1.				
		2.				
		3.				