Course Unit Descriptor

Study Programme: Applied Mathematics MB	
Course Unit Title: Statistical modeling	
Course Unit Code: MB44	
Name of Lecturer(s): Zagorka Lozanov Crvenković	
Type and Level of Studies: master	
Course Status : elective	
Semester : summer	
Language of instruction: English	
Mode of course unit delivery : face-to-face	
Number of ECTS Allocated: 5	
Prerequisites:	
Course Aims: Acquiring knowledge and skills in advanced statistical methods.	
Learning Outcomes: Students will learn the theoretical notions in several statistical methods, and will be able to solve the practical problems using statistical software.	
Syllabus: *Theory* *Analysis of variance – one wa, two way, repeated measures. Regression analysis – linear, non linear, multiple.Testing of the coefficients of the model. Anaysis of residuals. Logistic regression, nonparametric tests.* *Practice* *Analysis of variance – one wa, two way, repeated measures. Regression analysis – linear, non linear, multiple.Testing of the coefficients of the model. Anaysis of residuals. Logistic regression, nonparametric tests*	

1. **Required Reading:** Zagorka Lozanov Crvenković, Statistics, Faculty of Science, Novi Sad, 2012.
2. Julian J. Faraway, *Practical Regression and Anova using R*, 2002,
3. Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, *An Introduction to Statistical Learning, with Applications in R,* Springer, 2013,
4. Douglas C. Montgomery, *Design and analysis of experiments*, John Wiley & Sons Inc. 2001.
5. Andy Field, *Discovering Statistics using IBM SPSS Statistics*, SAGE, 2012,

N. R. Draper, H. Smith,1998: *Applied regression analysis.* Wiley-Interscience, New-York, 736 pp

Weekly Contact Hours: 4	**Lectures: 2**	**Practical work: 2**

Teaching Methods:
Lectures are presented using classical teaching methods and supported by beamer presentations and using statistical softwares. Exercises are used to practice and analyse typical problems and their solution, using statistical software Statistica and R. The abillity of application of theoretical knowledge is checked through independent solving of exercises. The final exam is written and oral and a student is supposed to demonstrate general understanding of the presented theoretical material.

Knowledge Assessment (maximum of 100 points):

Pre-exam obligations	points	**Final exam**	points
Active class participation		written exam	60
Practical work		oral exam	40
Preliminary exam(s)		…….	
Seminar(s)			

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.