Study Program: Mathematics	
Type and level of studies: Bachelor studies, VII semester	
Course name: Mathematical statistics	
Lecturer: Denić M. Nebojša	
Status: Compulsory	
ECTS: 6	
Attendance Prerequisites: none	

Course aims

Acquiring the knowledge necessary to understand the basic mathematical principles in formulation of statistical laws.

Course outcome

Operational use of statistical methods in solving various problems, as well as applied in everyday practice.

Course content

Theoretical part

1. Introduction (basic concepts of statistics, important distributions of mathematical statistics, statistics and their distributions)
2. Sample theory (random selections with and without replacement, some special sample plans, sample statistics, arrangement and presentation of samples)
3. Parameter estimates (point estimation, sufficient statistics, some point estimation methods, confidence intervals)
4. Testing of statistical hypotheses (Neumann-Pearson theorem, uniformly most powerful tests, parametric tests, nonparametric tests: Pearson's χ2 test, Kolmogorov test)
5. Regression (type one and type two regression, normal regression model, estimation of model parameters, regression-based extrapolation)
6. Analysis of variance (one-factor problem, two-factor problem on a simple sample and a sample with replacement)

Practical part

Solving tasks in the aforementioned areas. Working with statistical software.

Literature:

1. Поповић Б.: *Математичка статистика и статистичко моделовање*, ПМФ, Ниш, 2003.
2. Аранђеловић И., Митровић З., Стојановић В.: *Вероватноћа и статистика*, Завод за уџбенике, Београд, 2011.
3. Бањевић Д., Видаковић Б.: *Вероватноћа и статистика - збирка решених задатака*, Научна књига, Београд, 1989.

Number of active classes				Other classes
Lectures: 2	Practical classes: 3	Other forms of teaching:	Students' research work	

Teaching methods

Lectures are in accordance with the topic in *course content*, computer practice and independent student research work.

Assessment (maximum 100 points)			
Course assignments	**points**	**Final exam**	**points**
activity during lectures	**10**	written exam	
practical classes	**10**	oral exam	**40**
term test(s)	**40**	....	
seminar(s)	-		
Total	**60**		**40**