Study programmes: Doctoral studies – Mathematics – Probability and statistics

Course name: Linear statistical models

Lecturers: Jelena Jocković, Bojana Milošević, Pavle Mladenović, Marko Obradović

Status: Optional

ECTS: 9

Attendance prerequisites: Mathematical statistics

Course aims: Acquiring general and specific knowledge concerning testing statistical hypothesis

Course outcome: Upon completing the course, a student is capable of applying the acquired knowledge and conducting individual scientific research in this field.

Course content: The theory of least squares and analysis of variance. Gauss-Markov set up. Normal equations and least squares estimators. Variances and covariances of l.s. estimators. Other approaches to the l.s. theory(geometric solution). Explicit expression for correlated observations. L.s. estimation with restrictions on parameters. Estimation of parametric functions. Tests of hypotheses and interval estimation. Single parametric function. More than one parametric function. Set up with restrictions. One-way classified data. Two-way classified data. A general model for two-way data and variance components. The theory and application of statistical regression. Concept of regression. Measurement of additional association. Test for equality of the regression equations. The test for an assigned regression function. The general problem of least squares with two sets of parameters. Analysis of covariance .

Literature:

C.P. Pao, ***Линейные статистические методы и их применения***, Наука, Москва, 1968.

Number of hours : 10	**Lectures**: 4	**Research:** 6

Teaching and learning methods: Frontal / Individual

Assessment (maximal 100 points)

Course assignments	points	**Final exam**	points
homework	20	Written exam	
Exercises / Tutorials		Oral exam	60
Colloquia			
Essay / Project	20		