Study programme(s): Applied Mathematics (MAP)

Course title: SOFTWARE PACKAGES FOR DATA ANALYSIS (P304)

Lecturer(s): Sanja Rapajić

Course status: compulsory on module: Data Analytics and Statistics

ECTS points: 6

Requirements:

Learning Objectives

The aim of the course is that students gain insight and operational knowledge about existing software packages for statistics, data analytics, data visualization, analysis, modelling and visualization of networks, etc.

Learning Outcomes

Operational knowledge and experience in the application of different software packages for statistics, data analytics, data visualization, analysis, modeling, and visualization of networks. Students gain experience in applying selected software packages to real data.

Syllabus

Theoretical instructions

Introduction to various statistical packages for sampling, data cleaning and preparation, data analysis, statistical modeling, machine learning, visualization, modeling and network analysis. A wide range of software packages and libraries are being considered, including packages in R, Python, Statistica, MATLAB, and other available software. The course is complementary to programming courses, where software packages that are not emphasized in nominal curriculum courses will be covered.

Practical instructions

Students work on mini projects in different software packages and on different real data sets.

Literature

1. John M. Quick, **Statistical Analysis with R**, Packt Publishing, 2010.
2. Jake Vander Plas, **Python Data Science Handbook: Essential Tools for Working with Data**, O Reilly Media Inc., 2017.
3. J. P. Marques de Sa, **Applied Statistics Using SPSS, STATISTICA, MATLAB and R**, Springer, 2007.

Number of active classes	**Lectures: 1**	**Exercises: 4**

Teaching methods

Lectures; repetition; active participation of students in problem solving; demonstration and tutorial of software packages during classes; applications and examples of problems with real data sets.

Grading (maximum number of points 100)

Pre-exam obligations	Points	**Final exam**	Points
Project tasks	**50**	Final exam	**50**