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| M068 | MR - obligatory – Semester 1 IPM - elective – Year 1 | Statistical Practice | L+P+S 1+2+1 | ECTS 6 |
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Course objectives. The objective of this course is to develop skills for statistical data analysis which include computer skills and skills for the application of basic statistical models.

Course prerequisites. Introduction to Probability and Statistics.

Syllabus.

1. Statistical inferences based on a single sample (point estimation of a distribution function, expectation and variance, interval estimation of expectation and variance, statistical tests on expectation, variance and distribution).
2. Statistical inferences based on two samples (comparing two population means, proportions, variances and distributions, analysis of contingency tables, inference on a correlation coefficient, simple linear regression).
3. Statistical inferences based on two or more samples (ANOVA, multivariate regression).

Expected learning outcomes.

After completing the course, students are expected to:

- understand statistical models used for statistical inferences;
- understand statistical methods and properties of statistics used for statistical inferences;
- demonstrate the ability for data analysis by using models and methods from the course;
- use computers and appropriate software for data analysis;
- critically study and apply new literature for data analysis;
- understand benefits and limitations of statistical data analysis in application;
- present results of a statistical analysis to amateurs and professionals.

Teaching methods and student assessment. Attendance at all lessons is required. The program R is to be used for problem solving. After completion of lectures, exercises and seminars, students take an exam in a written and an oral form. Acceptable results achieved in mid-term exams throughout the semester replace the written part of the exam.

Can the course be taught in English. Yes.

Basic literature:

1. Ž. Pauše, Uvod u matematičku statistiku, Školska knjiga, Zagreb, 1993
2. M. Benšić, N. Šuvak, Applied Statistics, reviewed teaching materials available on the website of the course

Recommended literature:

1. J. Pitman, Probability, Springer, 1993.
2. L. E. Bain and M. Engelhardt - Introduction to Probability and Mathematical Statistics, Brooks/Cole Cengage Learning, 1992.
3. N. Elezović - Statistika i procesi, Element, Zagreb, 2007.
4. F. Daly, D. J. Hand, M.C. Jones, A.D. Lunn, K. J. McConway, Elements of Statistics, Addison-Wesley, Wokingham, England, 1995.
5. G. McPherson, Applying and Interpreting Statistics, A Comprehensive Guide, Springer, 2001.
6. G. M. Clarke, D. Cooke, A Basic Course in Statistics, Arnold, London, 1992.
7. J. T. McClave, P. G. Benson, T. Sincich, Statistics for Business and Economics, Prentice Hall, New York, 2001.
8. G. K. Bhattacharyya, R.A. Johnson, Statistical Concepts and Methods, J. Wiley, 1977.