Specification of the course for the Book of courses

Study program		Applied statistics	
Title of the course		**Analysis of categorical data**	
Teachers (for lectures)		Vladimir Hedrih	
Teacher/fellow teacher (for exercises)			
ESPB	6	**Status of the course (obligatory (O) /elective (E))**	E (O in module)

Conditions	
Aim of the course	The aim of this course is to introduce students to the analysis of categorical data, the types of distribution, their treatment and approximation, and usage of loglinear models.
Course outcomes	Upon completion of this course, students should be able to understand the nature and distribution of categorical data and their possible transformation. Also, students should be competent to apply different types of loglinear models, and to interpret the results of these statistical procedures.
Content of the course	
Theoretical classes	Introduction to the binomial and polynomial distribution. Marginal and conditional distribution. Approximation of normal distribution. Evaluation and testing of categorical data. Delta method for determining the asymptotic variance. Contingency tables. The treatment of incomplete or missing data. Structural parameterization. Conditional probability ratio (conditional odds ratio). The structure of associations and generalization of independence. Loglinear models. Regression models in loglinear interpretation.
Practical classes	Practical classes include practicing content from lectures using the R statistical software environment. Students will use the ready-made examples, but they themselves will prepare categorical data on which to perform statistical analysis.
References	
1	Agresti, A. (2002). *Categorical Data Analysis*. New Jersey: Wiley.
2	Bishop, Y. M., Fienberg, S. E., & Holland, P. W. (2007) *Discrete Multivariate Analysis: Theory and Applications*. New York: Springer.
3	Rudas, T. (1998). *Odds Ratios in the Analysis of Contingency Tables*. Thousand Oaks: Sage.
4	Fienberg, S. E. (2007). *The Analysis of Cross Classified Categorical Data*. New York: Springer.

The number of contact hours per week during the semester / trimester / year

Lectures	**Exercises**	**DON**	**Research work**	**Other classes**
2	2	----	------	------

Teaching methods	Lectures, exercises, writing the statistical reports, consultative work

Evaluation of knowledge (maximum score 100)

Pre exam duties	**points**	**Final exam**	**points**
Activity during lectures	10	**Written exam**	30
Activity during exercises	20	**Oral exam**	20
seminars	20		