



Statistical Modelling (Statistische Modellierung)

Organization:

Course type:	Lecture + Exercise
Semester hours per week:	2 + 2
Prerequisites:	Statistical Methods I und II
Turn:	Once per year
Exam type:	Exam (90 min, electronic exam)
ECTS:	6 (variations possible)

Learning objectives:

The participants of "Statistical Modelling" are familiarised with the basic principles of generalised regression models. A special focus is on the analysis of metric and binary variables (logit models). The participants will be able to apply these regression techniques independently on the basis of empirical data with statistical software (R-Studio) and to interpret them confidently.

Course description:

The course "Statistical Modelling" deals with the analysis of data through regression models. As a starting point, linear regression models for metric variables (e.g. rent or income) are first discussed in depth and different modelling options (e.g. dummy variables or transformations) are presented. Subsequently, the most important models in the analysis of binary (e.g. unemployed yes/no), nominal (e.g. highest school-leaving qualification) respectively integer characteristics are dealt with. Furthermore, the analysis of general dependency patterns is discussed. The students learn the corresponding methods and are enabled to interpret results based on these methods in a meaningful way. In the exercise part, the use of corresponding software (R-Studio) is studied and the results obtained are interpreted on the basis of examples.

Content overview:

1. Introduction and Motivation
2. Maximum Likelihood Estimation
3. Linear Regression Model
4. Categorical Response Variables
5. Poisson Regression
6. Generalised Linear Models