1 General information

Course objectives

- This is the first course of a sequence of two courses on structural econometrics offered by the DIW Graduate Center
- Focuses on discrete choice models for cross section and panel data
- Covers simulation-based estimation techniques such as Maximum Simulated Likelihood (MSL), Method of Simulated Moments (MSM), and Indirect Inference
- Applied papers from the fields of labour economics, health economics, industrial organization, and behavioral economics will be discussed
- Exercises will include the use of a software package (Matlab)
- The aim is to equip students with skills allowing them to carry out independent empirical research

Course organization

- The course is taught by Daniel Kemptner
- Credit points: 6 ECTS. 6 sessions (4 hours)
- Prerequisites: skills in advanced econometric methods (Master or Ph.D. level)
- All sessions in this course take place at DIW
- First session: 18.4.2018; final session: 23.5.2018

Grading

- The overall grade will be determined by
  - 2 problem sets (to be completed in groups of max. 2 participants), weighted 1/4 each, and
  - a final exam, weighted 1/2.

Main textbook

2 **Introduction to choice models (18.4.; room 3.3.002C on the third floor at DIW)**

- Train, K.E. (2009), chapters 1, 2
- Properties of choice models
- Binary choice models
- Non-linear models and panel data; Wooldridge, J.M. (2005); Akay, A. (2011)

3 **Logit model (25.4.; room 3.3.002C on the third floor at DIW)**

- Train, K.E. (2009), chapter 3
- Properties, power, limitations, and estimation

4 **Unobserved heterogeneity (2.5.; Karl Popper room on the second floor at DIW)**

- Train, K.E. (2009), chapters 4–6
- Probit model, taste variation and panel data
- Simulation of choice probabilities

5 **Extensions (9.5.; Karl Popper room on the second floor at DIW)**

- Train, K.E. (2009), chapter 7
- Stated- and revealed-preference data
- Ranked data and ordered responses

6 **Estimation techniques (16.5. and 23.5.; Karl Popper room on the second floor at DIW)**

- Train, K.E. (2009), chapters 8–11, 14
- Numerical integration and drawing from densities
- MSL estimation, MSM estimation, and indirect inference
- Individual-level parameters
- Expectation-Maximization Algorithm
- Bootstrapping
7 Papers