Advanced Empirical Research Methods (2nd-year course, 2 terms)

Topics- Abi Adams-Prassl

1. Introduction to Structural Estimation & Identification.
2. Simulating & estimating a consumer choice models.
3. Maximum Simulated Likelihood.
4. Simulating & estimating the multinomal probit.
5. Method of Simulated Moments.
6. Simulating & estimating a lifecycle consumption model

Topics-Steve Bond

This module will focus on Generalised Method of Moments (GMM) estimators for linear panel data models, and the implementation of some of these methods using R.

The main emphasis will be on methods for panels where the cross-section dimension is large and the time-series dimension is small. This will cover estimation using equations in first-differences (or related transformations) to eliminate unobserved, time-invariant, individual-specific 'fixed' effects; and extensions which incorporate
additional moment conditions for the untransformed equations in levels, using instrumental variables that are orthogonal to the individual effects. Inference and specification testing in this context will also be covered. An application to the estimation of production functions will also be discussed. Classes will demonstrate the implementation of these methods using the plm package.

Topics- Katharina Janezic

- Introduction to Experiments
- Designing an Experiment
- Implementing an Experiment
- Evaluating Experiments

Topics- Romu Meango

This part of the course is in continuation of the econometrics methods for causal inference that have been introduced in Core ERM. Within the framework of causal inference (or more specifically program evaluation), we will discuss in greater length methods for addressing the so-called fundamental problem of causal inference:

- Selection-on-observables;
- Difference-in-difference;
- Regression Discontinuity Design;
- Instrumental variable methods (LATE Model, Roy model, marginal Treatment effect).

Topics- Howard Smith: Demand and Supply Modelling

1. The canonical model.
2. Inversion of market share function. GMM estimation with market-level data.
3. The logit and nested logit models. Application: autos. Estimation. Post-estimation calculation of elasticities, markups, marginal costs. Classwork 1.
4. The probit and mixed-logit (BLP) models. The BLP contraction mapping. Applications: Autos and cereals. Classwork 2 & 3.
5. Counterfactual simulation of equilibrium market outcomes. Classwork 4.
6. Incorporating a supply side into estimation with the multi-product Nash pricing assumption. Classwork 5.
7. Adding consumer-level data.
8. Nonparametric identification.

Topics- Ian Crawford

- Linear Programming
  - Introduction
  - Examples in R
  - Application 1 – rationality
  - Application 2 – quantile regression
  - Further/related topics – integer programs (Ips, BIPs and MILPs), the assignment problem, two-person games, graphs ….
- Graphs and Networks
  - Terminology concepts
  - igraph in R
  - Visualisation
  - Edge and Vertex attributes
  - Walk, paths, circuits
  - Graph characteristics and measures
    - Application 1: Rationality revisited
    - Application 2: Analysing a social network