

SYLLABUS
Advanced Microeconometrics
NHH Norwegian School of Economics
CELE Center for Empirical Labor Economics
Bergen, Norway, August 28 - September 1, 2017
A. Colin Cameron, University of California - Davis

GOAL

This course presents several special topics in microeconometrics.

The course will illustrate the various methods using Stata, and Stata programs and datasets will be provided. A complete set of overheads will be provided.

PRESUMED BACKGROUND

Nonlinear methods: Maximum likelihood estimator, nonlinear least squares estimator, asymptotic theory for m-estimators, statistical inference, gradient methods, computation of marginal effects.

ORGANIZATION

All lectures and computer labs in Karl Borch, except Wednesday Computer Lab in Lab 2 and Thursday Computer Lab in Auditorum Agnar Sandmo

The Monday and Tuesday schedule is:

9:00 - 10:30: First lecture; **11:00 - 12:30:** Second lecture; **13:30 - 15:00:** Computer lab

The Wednesday and Thursday schedule is:

8:30 - 10:00: First lecture; **10:30 - 12:00:** Second lecture; **13:00 - 14:30:** Computer lab

The Friday schedule is:

10:00 - 15:00: Student presentations.

COURSE OUTLINE

DAY 1: Count Regression (a leading example of nonlinear regression)

Lecture 1: Basic cross-section methods: Poisson, negative binomial, hurdle, zero-inflated.

Lecture 2: More advanced methods: mixtures, endogeneity, panel data.

Computer Lab: Some general Stata and Stata for Counts.

DAY 2: Inference for Clustered Data

Lecture 1: Clustered Data: Focus on panel data example. OLS with cluster-robust standard errors, feasible GLS, serially correlated errors, random effects, fixed effects, bootstrap without asymptotic refinement.

Lecture 2: Clustered Data: Focus on cross-section example. Mixed models, what to cluster over, twoway clustering, spatial correlation, few clusters, bootstrap with asymptotic refinement, nonlinear models, endogenous regressors.

Computer Lab: Stata for clustered data.

COURSE OUTLINE (continued)

DAY 3: Simulation Methods

Lecture 1: Simulation: Pseudo random draws, Monte Carlo integration, Gaussian quadrature, Monte Carlo experiment.

Lecture 2: Maximum simulated likelihood, Bayesian approach, Bayesian analytical example, Bayesian data example.

Computer Lab: Stata for Monte Carlo experiments and Bayesian estimation.

DAY 4: Nonparametric and Semiparametric Estimation.

Lectures 1 and 2: Nonparametric estimation, semiparametric regression, bootstrap.

Computer Lab: Stata for MSL and for non and semi-parametric regression.

DAY 5: Student presentations.

COMPUTER LABS

The computer labs will go through the programs posted at the course website.

COURSE MATERIAL

The main material is overhead slides that will be provided and that are self-contained.

This will be posted at <http://cameron.econ.ucdavis.edu/nhh2017/>

Stata programs and data sets will be posted at the course website. My programs assume access to Stata 14. I will also use a little Stata 15 in class. This Stata 15 is in the programs, but commented out.

Some Stata add-on programs are required - see the course website.

The main references will be

A.C. Cameron and P.K. Trivedi (2005), *Microeconometrics: Methods and Applications*, Cambridge University Press.

A.C. Cameron and P.K. Trivedi (2005) *Microeconometrics using Stata*.

Plus some relevant papers including A.C. Cameron and D.L. Miller (2015) "A Practitioner's Guide to Cluster-Robust Inference."

Available at http://cameron.econ.ucdavis.edu/research/Cameron_Miller_JHR_2015_February.pdf