SYLLABUS
Advanced Microeconometrics
NHH Norwegian School of Economics
CELE Center for Empirical Labor Economics
Bergen, Norway, August 28 - September 1, 2017
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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
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, nonlin-
ear 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.