

Economics 8828

Fall 2019

Prof. Xiaodong Liu

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Location: ECON 5

Meeting Times: MW 1:30-2:45

Office Hours: MW 12:30-1:30

Course Description:

This is a second-year graduate econometrics course that focuses on the analysis of individual-level data. It covers econometric methods based on the general linear and nonlinear models for cross-section data. The first half of this course studies the M-estimators and their application in discrete choice models and multivariate models. The second half of the course introduces spatial and social network models.

Prerequisite: Econ 7828.

Text: Davidson, R. and J. G. Mackinnon, 2004, *Econometric Theory and Methods*.

Assessment:

There will be a midterm exam, a final exam, and periodic problem sets.

1. Homework assignments (20%)
2. Midterm examination (40%)
3. Final Examination (40%)

Tentative Course Outline:

1. The Generalized Method of Moments
 - a. GMM estimators for linear regression models
 - b. HAC covariance matrix estimation
 - c. Tests based on the GMM criterion function
 - d. GMM estimators for nonlinear models
 - e. The method of simulated moments
2. The Method of Maximum Likelihood
 - a. Asymptotic properties of ML estimators
 - b. The covariance matrix of the ML estimator
 - c. Hypothesis testing
 - d. The asymptotic theory of the three classical tests
 - e. ML estimation of models with autoregressive errors

3. Discrete and Limited Dependent Variables
 - a. Binary response models
 - b. Models for unordered multiple choices
 - c. Models for count data
 - d. Models for censored and truncated data
 - e. Sample selectivity
 - f. Duration models
4. Multivariate Models
 - a. Seemingly unrelated linear regressions
 - b. Systems of nonlinear regressions
 - c. Linear simultaneous equations models
 - d. Nonlinear simultaneous equations models
5. Spatial and Social Network Models
 - a. Spatial autoregressive models
 - b. IV, GMM and ML estimation
 - c. Social interaction models
 - d. Network formation models

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition or injury, see [Temporary Medical Conditions](#) under the Students tab on the Disability Services website.

Classroom Behavior

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in

the semester so that I may make appropriate changes to my records. For more information, see the policies on [classroom behavior](#) and the [Student Code of Conduct](#).

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students who are found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the [Honor Code Office website](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct intimate partner abuse (including dating or domestic violence), stalking, protected-class discrimination or harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, [anonymous reporting](#), and the campus resources can be found on the [OIEC website](#).

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See the [campus policy regarding religious observances](#) for full details.