

Prof. Xiaodong Liu

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Location: ECON 5

Meeting Times: MW 1:00-2:15

Office Hours: MW 12:15-1:00

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 course begins with a review of M-estimators, followed by their application in discrete choice models, panel data models, and network models.

Prerequisite: Econ 7828.

Text:

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

Cameron, A. C. and P. K. Trivedi, 2005, *Microeconometrics*.

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. Review of M-estimators
 - a. GMM estimators for linear regression models
 - b. GMM estimators for nonlinear models
 - c. Asymptotic properties of ML estimators
 - d. Hypothesis testing
 - a. The asymptotic theory of the three classical tests
 - b. ML estimation of models with autoregressive errors
2. Discrete and Limited Dependent Variables
 - a. Binary response models
 - b. Models for unordered multiple choices
 - c. Models for censored and truncated data
 - d. Sample selectivity
 - e. Duration models

3. Panel Data Models
 - a. Pooled models
 - b. Fixed effects and random effects models
 - c. Dynamic models
 - d. Nonlinear panel data models
4. Spatial and Social Network Models
 - a. Spatial autoregressive models
 - b. IV, GMM and ML estimation
 - c. Social interaction models
 - d. Network formation models

University Policies:

Classroom Behavior

Students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote, or online. Failure 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.

For more information, see the [classroom behavior policy](#), the [Student Code of Conduct](#), and the [Office of Institutional Equity and Compliance](#).

Accommodation for Disabilities, Temporary Medical Conditions, and Medical Isolation

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, see [Temporary Medical Conditions](#) on the Disability Services website.

If you have a temporary medical condition or required medical isolation for which you require accommodation, see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

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 Honor Code may include but are not limited to: plagiarism (including use of paper writing services or technology [such as essay bots]), 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 Student Conduct & Conflict Resolution: honor@colorado.edu, 303-492-5550. Students found responsible for violating the [Honor Code](#) will be assigned resolution outcomes from the Student Conduct & Conflict Resolution as well as be subject to academic sanctions from the faculty member. Visit [Honor Code](#) for more information on the academic integrity policy.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. University policy prohibits [protected-class](#) discrimination and harassment, sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, and related retaliation by or against members of our community on- and off-campus. These behaviors harm individuals and our community. The Office of Institutional Equity and Compliance (OIEC) addresses these concerns, and individuals who believe they have been subjected to misconduct can contact OIEC at 303-492-2127 or email cureport@colorado.edu. Information about university policies, [reporting options](#), and support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents related to these policies regardless of when or where something occurred. This is to ensure that individuals impacted receive an outreach from OIEC about their options for addressing a concern and the support resources available. To learn more about reporting and support resources for a variety of issues, visit [Don't Ignore It](#).

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.

Mental Health and Wellness

The University of Colorado Boulder is committed to the well-being of all students. If you are struggling with personal stressors, mental health or substance use concerns that are impacting academic or daily life, please contact [Counseling and Psychiatric Services \(CAPS\)](#) located in C4C or call (303) 492-2277, 24/7.

Free and unlimited telehealth is also available through [Academic Live Care](#). The Academic Live Care site also provides information about additional wellness services on campus that are available to students.