Economics 470H/799
Applied Econometric Analysis using Matrix Algebra

Syllabus

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Office hours: MW 2:30-3:30

TA: Adam Haas
Office Hours: TBD

Midterm 1 (25%): February 21
Midterm 2 (25%): April 16
Five to Seven Problem Sets (15% total)
Final Exam (35%): Friday, May 3 at 8:00AM

Required Textbook:

Econometric Analysis Eighth Edition (2018) William Greene

Prerequisites:
The pre-requisites are Econ 400 (Statistics) and Math 547 (Matrix Algebra) with a grade of B or better in each or permission of the instructor.

Code of Conduct:

The University Honor Code is in effect. In particular, this implies that all work submitted is your own.

Course description:

Econometrics is the application of statistical methods and economic theory to the problem of identifying, estimating, and testing economic models. This course covers concepts and methods used in empirical economic research. Students will learn how to conduct and how to critique empirical studies in economics. Accordingly, the emphasis of the course is on various empirical applications. Topics include classical single-equation regression model, multiple regression models, discrete and categorical dependent variables, instrumental variables and longitudinal data. In the lectures, there will be many empirical examples using a wide variety of data sets.

Problem sets:

All problem sets (five to seven over the course of the semester) will involve empirical analysis using data sets in STATA 15 format that we will provide. STATA is available in computer labs on campus, a student edition can be purchased, and it is available as part of the Citrix virtual computer lab that you can access with your onyen and password. Problem sets are independent work – not a group project. However, it is okay to ask a fellow student about STATA commands, for instance. You should hand in your assignments at the beginning of class the day they are due (typically a week after distribution). Late problem sets (but before answers are posted) will be marked down by 50%.

Course Outline and Tentative Semester Schedule:

Week 1:

Types of Data
Review of basic statistics and matrix algebra (Greene online appendices plus handouts)

Week 2 and 3:

Linear Regression (2, 3.1, 3.2, 3.5, 3.6, 4.1, 4.2 4.3, 4.4, 4.8 4.9, 5.2.1-5.2.4, 5.3)

Weeks 4:

Model Selection and Functional Form (6)

Week 5 and 6:

Heteroskedasticity and Autocorrelation (9.1-9.7, 4.5, 20.5, 20.7, 20.8, 20.9)

Week 6:

Review and midterm 1.

Weeks 7 and 8:

Endogenous Regressors (8.1-8.8)

Week 9:

Maximum Likelihood (14.1-14.4, 14.6)

Weeks 10 and 11:

Limited Dependent Variable Models (17.1-17.3,18.1,18.2.1-18.2.4, 18.3.118.4.1-18.4.6,19.1-19.3)

Week 12:

Review and midterm 2

Weeks 13 and 14:

Panel Data Models (11.1-11.5, 11.8)

Week 15:

Special Topics (TBD)

Electronic devices:

All electronic devices must be turned off during class. This includes cell phones and laptop computers. You should plan on taking notes "by hand." The STATA do files and log files of results from the in-class examples will be posted to the Sakai site.

Grading Policy:

All problem sets and tests are graded on a 100 point scale. The final grade is determined by weighting problems sets by 15%, midterm exams by 25% each, and the final exam by 35%. Letter grades are determined from the following scale:

	Undergrad	Graduate Student
100 – 93	A	H
92-90	A-	H
89-87	B+	H
86-83	B	P
82-80	B-	P
79-77	C+	P
76-70	C	L
69-60	D	L
59 -0	F	F

Policy for Missing a Midterm:

If a student misses one of the two midterms, the weight of that midterm in the course grade will be equally divided between the other midterm and the final exam. An exception will be made for University-approved absences (see http://catalog.unc.edu/policies-procedures/attendance-grading-examination/); students with this type of absence may request a make-up examination at a time convenient to both student and instructor.

Counseling and Psychological Services:

CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: https://caps.unc.edu or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

Accessibility Resources & Services:

UNC-Chapel Hill facilitates the implementation of reasonable accommodations for students with learning disabilities, physical disabilities, mental health struggles, chronic medical conditions, temporary disability, or pregnancy complications, all of which can impair student success. See the ARS website for contact and registration information: https://ars.unc.edu/about-ars/contact-us.