

ARE/ECN 240A	ECONOMETRIC METHODS	Winter 2011
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Instructor:	Professor Òscar Jordà 1150 Social Sciences and Humanities Bldg. (SSH) Phone: (530) 554 9392 e-mail: ojorda@ucdavis.edu CLASS URL: http://www.econ.ucdavis.edu/faculty/jorda/class/240a/240a.html
Class Meets:	T – R, 10 – 11:20/50am . Room: WELLMAN 115
Office Hours:	Mondays, 1 – 3pm; Wednesdays 10-11am, or by appointment
Teaching Assistant	Liugang Sheng 117 SSH e-mail: lsheng@ucdavis.edu
Office Hours:	Tuesdays 2-4pm, or by appointment

Textbook: I do not follow a particular textbook closely – I constructed my own notes from different sources. I have chosen, **Econometric Theory and Methods** by Davidson and McKinnon (Oxford University Press) as a pseudo-textbook and because it will be used by Professor Smith in 240B. Another useful reference is **Econometric Analysis** by William Greene, which covers far more than we will, but the coverage is very terse. It is a bit like looking something up in Wikipedia – it gives you the gist of what you need but it is probably not the book you want to study from if you want to understand things well. Some of the material in my notes comes from the textbook that Bruce Hansen makes available in his website: <http://www.ssc.wisc.edu/~bhansen/econometrics/>. I like his approach on a number of topics although for some others, the level may be too high for this course.

Assignments: I plan to have regular assignments, hopefully involving some computer work as well. The software programs that I plan to use are STATA and GAUSS. You should not be too stressed about this since most of the exercises will involve relatively simple manipulations of programs that I will have prepared for you. Also, if you are familiar with Matlab, I have no objection to you using it instead of GAUSS. My understanding is that STATA and GAUSS/Matlab are available in the AgEcon computer lab for AgEcon students. For Econ students, STATA and Matlab should be available in the computer lab. However, GAUSS is available only through a Unix server maintained by SSDS. Therefore you will need to create an account there. This can be done through the web following this link: <http://ssds.ucdavis.edu/computing/uaccount.html>

Grading: There will be three components to your grade, assignments (10%), midterm (40%) and final (50%).

Planned Schedule:

February 1 March 16: 8-10am	Midterm FINAL
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Outline of Topics:

- ***Topic 0. Review of Basic Concepts.*** Quick review of bivariate regression, estimation, inference and evaluation. Statistical foundations. Basic statistical concepts you should know from 239. Basic matrix algebra you should know.
- ***Topic 1. Multivariate Regression: Part I.*** Statement of the objective of regression analysis. Basic assumptions. Three approaches: method of moments (MM); ordinary least squares (OLS); and maximum likelihood (MLE). Basic derivations for each of these methods.
- ***Topic 2. Multivariate Regression Part II.*** Properties of MM/OLS/MLE estimators – finite and large sample properties. Basic theory for extremum estimators.
- ***Topic 3. Inference I.*** Elements of a test. Wald, likelihood ratio (LR) and Lagrange multiplier (LM) tests; single and multiple hypothesis testing; asymptotic distribution of common tests.
- ***Topic 4. Inference II.*** Confidence regions and simultaneous testing procedures. Simulation-based testing. Assessing the size and power of a test with Monte Carlo techniques. The bootstrap.
- ***Topic 5. Extensions to the basic framework I.*** Heteroskedasticity and autocorrelation – testing and generalized least-squares.
- ***Topic 6. Instrumental Variable Regression.*** Causation versus correlation. Basic ideas. Two stage least squares. Generalized Method of Moments.
- ***Topic 7. Extensions to the basic framework II.*** Nonlinear regression. Limited dependent variable regression and applications of MLE.
- ***Topic 8. Introduction to Time Series Data.*** Introduction to basic concepts. Stationarity. ARMA models.