

**Economics 120B - Econometrics**  
**Fall 2011**  
Tu Th 2:00 - 3:20 pm, Solis Hall 107

**Instructor:**

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**Teaching Assistants**

David Kaplan	<a href="mailto:dkaplan@ucsd.edu">dkaplan@ucsd.edu</a>
Office Hours:	Mon 10:00 - 11:30 am (Economics 124)
John McAdams	<a href="mailto:jmcadams@ucsd.edu">jmcadams@ucsd.edu</a>
Office Hours:	Fri 11:00 am - 12:30 pm (Sequoyah 226)
Yana Morgulis	<a href="mailto:ymorgulis@ucsd.edu">ymorgulis@ucsd.edu</a>
Office Hours:	Wed 5:30 - 7:00 pm (Economics 125)
Anh Pham	<a href="mailto:atp003@ucsd.edu">atp003@ucsd.edu</a>
Office Hours:	TBA (Economics 127)

**Discussion Sections**

Friday 2:00 – 2:50 pm, Pepper Canyon Hall 106  
Friday 3:00 – 3:50 pm, Pepper Canyon Hall 106

**Economics 120B**  
**Econometrics**

**Course Description**

The course aims to prepare students for practical empirical research in an academic or business setting. It introduces the three basic concepts in econometrics: quantifying uncertainty with confidence intervals; using regression to infer causal relationships; and using regression for prediction. The course provides the standard tools necessary to perform and read empirical research.

**Course Materials**

Required Textbook: “Introduction to Econometrics” by James H. Stock and Mark W. Watson, 2<sup>nd</sup> edition (2007), Pearson/Addison-Wesley. Chapters to be covered: 1-7, 9, and 12.1.

Required Software: The software for this course is STATA ([www.stata.com](http://www.stata.com)). Students are not required to buy the software. Students can use STATA in the computer lab in Economics Building #100, and in other computer labs on campus. Do not use other software packages to complete course assignments.

Optional Text on Using STATA: “Statistics with STATA (updated for Version 10)” by Lawrence Hamilton (2009), Cengage.

**Course Web Page**

A course web page is available at <https://ted.ucsd.edu/>.

It will include information relevant to the course, such as announcements, homework assignments, information on Stata tutorials, practice problem sets and tests, solutions, syllabus, schedule and more. You should check this page regularly.

### Lectures and Discussion Sections

It is important to come to every lecture. If you should miss a class, it is your responsibility to get the notes and any information provided in class. There are weekly discussion sections for this course. They are not mandatory. However, you should attend them since the TAs will go over practice problems, the kind of problems you may encounter on exams. The first discussion section will take place September 30<sup>th</sup>.

### Stata Tutorial Sections

Twice during this quarter, the TAs will provide tutorial sections to facilitate the learning and use of Stata. Check the course webpage for specific dates and locations for these two sets of tutorials. The sections will take place in a computer lab and they will be practical applications of the software. The students will be able to follow and repeat the STATA commands using a computer in the lab. The commands learned in these tutorials are mainly the ones you will need to know for the homework assignments.

### Homework

There will be three homework assignments in this course. Homework assignments are Stata exercises and will serve as a way to learn and practice that software. They will be graded on effort, not on the correctness of answers. If you honestly attempt all the questions in the homework, you will get 100%. Complete all your homework assignments on your own. Remember, homework is assigned to assist you in learning the software and at the same time it is a good check of your understanding of the econometrics concepts taught in class.

### Grading

15% Homework Assignments  
35% Midterm Exam  
50% Final Exam

The midterm examination is scheduled to **Thursday, Nov 3<sup>rd</sup>**, at lecture time. The final exam will take place on **Thursday, December 8<sup>th</sup>** from 3:00 pm to 6:00 pm and will be cumulative. The dates for the exams are not negotiable. There are no make up exams. If you miss a midterm for a justifiable and verifiable medical/legal reason, your midterm grade will be your grade on the final. Otherwise you will receive a zero, no exceptions!!

The overall course grade, computed using the weights specified above, will be curved. In general, the class average corresponds to the lowest B-.

### Add/Drop Policy

The instructor will not sign add cards. For any question regarding waitlist procedures, please check Triton Link or go to the Economics Student Services in Sequoyah Hall 245.

### Outline of the Course

Part I: Introduction and Review (Chapters 1-3)

- Covariance and Correlation (Review)
- Correlation vs. causality; Policy analysis vs. prediction; Experimental vs. nonexperimental data
- Exact/finite sample distribution vs. large sample distribution
- Introduction to Stata

Part II. Linear Regression with One Regressor (Chapters 4 and 5)

- Least Square principle
- Sampling distribution of OLS estimator (data generating process)
- Confidence interval and hypothesis testing: small sample approach and large sample approach
- Revisit Econ 120A. Use regression with only intercept to infer about the mean
- Revisit Econ 120A. Use dummy variable regression to compare means from different subpopulations.

Part III. Linear Regression with Multiple Regressors (Chapters 6 and 7)

- Sampling distribution of the OLS estimator
- Confidence interval and hypothesis testing for a single coefficient
- Confidence set and joint hypothesis testing for more than one coefficient

Part IV. Topics in Multiple Regression

- Sources of OLS bias: measurement error, omitted variable, simultaneity and sample selection (Chapter 9)
- Instrumental variable regression with one endogenous regressor and one instrument (Chapter 12.1)