

**Economics 120B - Econometrics  
Spring 2018**

Section A00: MWF 10:00 am - 10:50 am, Center Hall 113

Section B00: MWF 11:00 am - 11:50 am, Center Hall 113

**Instructor:**

Maria Teresa Cândido

Office: 110A Economics

Office Phone #: 534-2518

Office Hours: Mondays 12:30 pm - 2:15 pm

Email: [mcandido@ucsd.edu](mailto:mcandido@ucsd.edu)

**Teaching Assistants**

Remy Levin [rzlevin@ucsd.edu](mailto:rzlevin@ucsd.edu)

Ying (Jenny) Feng [yif014@ucsd.edu](mailto:yif014@ucsd.edu)

Xiao Ma [xim032@ucsd.edu](mailto:xim032@ucsd.edu)

Yann Panassié [ypanassi@ucsd.edu](mailto:ypanassi@ucsd.edu)

Yuehui Wang [yuw263@ucsd.edu](mailto:yuw263@ucsd.edu)

Yimeng Li [yil403@ucsd.edu](mailto:yil403@ucsd.edu)

**Readers**

Pedram Heydari [peheydar@ucsd.edu](mailto:peheydar@ucsd.edu)

Wesley Howden [whowden@ucsd.edu](mailto:whowden@ucsd.edu)

Chen Liu [chl110@ucsd.edu](mailto:chl110@ucsd.edu)

**Teaching Assistants Office Hours**

**120B Problem Solving and Economics Tutoring Lab (PSET):** Undergraduate and graduate TAs will be available to answer your questions in Econ 300 most evenings and on Sunday. In Econ 300 there is room for you to work on your homework and get your questions answered if you get stuck. We hope to offer PSET on Mondays, Tuesdays, Wednesdays and Thursdays from 5:30-8:30pm and Sunday from 4-8pm but please check the web page for actual hours: <https://economics.ucsd.edu/undergraduate-program/courses/pset-lab.html>

**Discussion Sections**

Section A00:

Monday 7:00 – 7:50 pm, Pepper Canyon Hall 121

Monday 8:00 – 8:50 pm, Pepper Canyon Hall 121

Section B00:

Friday 3:00 – 3:50 pm, Peterson Hall 103

Friday 4:00 – 4:50 pm, Peterson Hall 103

**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. It teaches competency in STATA. The course provides the standard tools necessary to perform and read empirical research.

### Lectures and Discussion Sections

It is important to come to every lecture. Frequent absences may adversely affect class performance. 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. You may attend any of the four discussion sessions, regardless of which class you are registered for. The discussion sessions aim to cover the same information, so you do not need to attend more than one. The Friday sessions and the Monday sessions three days later cover the same information. The discussion sessions 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 April 6<sup>th</sup>.

### 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.

### Course Materials

Required Textbook: “Introduction to Econometrics” by James H. Stock and Mark W. Watson, 3<sup>rd</sup> edition (2011), Pearson/Addison-Wesley. Chapters to be covered: 1-8 and if time permitting chapter 9 (chapters 1-3 are review).

*Your required textbook is provided by the UC San Diego Bookstore in a digital format through TritonEd and is free for the first two weeks of classes. After two weeks, your student account will be charged a special reduced price unless you opt-out of the content. To opt out click the RedShelf link inside TritonEd and follow the opt out prompt, you must opt out by 4/14/18. Click [here](#) to view how to access your eBook or opt out.*

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, such as ERC 117. Do not use other software packages to complete course assignments. Students can also access STATA via the Virtual Lab. See <http://acms.ucsd.edu/students/govirtual/index.html> for more information. Individual copies of Intercooled STATA (i.e., STATA /IC) can be leased for six months for \$45 from <http://www.stata.com/order/new/edu/gradplans/student-pricing/>. Small STATA is not adequate due to its inability to handle large datasets. Websites for help on using STATA will be provided on our web page on TED.

### Stata Tutorial Sessions

Twice during this quarter, the TAs will provide tutorial sessions to facilitate the learning and use of STATA. Check the course webpage for specific dates and locations for these two sets of tutorials. The sessions will take place in a computer lab and they will be practical applications of the software. In those sessions, 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. 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, May 10<sup>th</sup>, from 7 to 8:20 pm, in Peterson Hall 108.**

Section A00: The final exam will take place on **Monday, June 11<sup>th</sup>, from 8:00 am to 11:00 am.**

Section B00: The final exam will take place on **Friday, June 15<sup>th</sup>, from 11:30 am to 2:30 pm.**

Final examinations 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-.

## 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 (input data, create log and do files, run regressions, graph, etc.)

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 (Chapters 8 and 9)

- Dummy variable regressions
- Modeling nonlinear functions
- Sources of OLS bias: measurement error, omitted variable, simultaneity and sample selection