

# ECONOMETRICS 120A

The course introduces students to the science of statistics, building student skills in the analysis of data and introducing the formal methods used by statisticians to learn about the real world. As a building block students will be introduced to basic probability theory. We will gain an understanding of the collection of data and the problems and opportunities this affords. Students will be expected by the end of the course to understand the foundations of modern statistical analysis in preparation for 120B and 120C.

**Instructor** Andres Santos (x42407)  
Economics #210

Email: a2santos@ucsd.edu (please use this address, not Ted)  
Office Hours: Wednesdays, 4:30pm - 7:00pm.

**Textbook** “Introductory Statistics for Business and Economics” by T.H. Wonnacott and R.J. Wonnacott, Fourth Edition or Fifth Edition, John Wiley and Sons: New York. There is also a custom version of the book made for UCSD students. This book is exactly the same as non-custom version, only less expensive.

## Course Outline

Part I (Chapters 1, 2, 11.1 and 11.2) Introduction to descriptive statistics (mean, median, mode, variance, frequencies, interquartile analysis, etc) and graphical analysis.

Part II (Chapters 4 and 5) Discrete and continuous Random Variables. Multiple Random Variables and their transformations. *Note:* Chapter 3 will not be covered. Please read this chapter even though it is not directly examined – the remaining chapters use some of its materials.

Part III (Chapters 6 and 7) Sampling and Point Estimation. Law of Large Numbers and Central Limit Theorem. Unbiasedness and Efficiency of estimators.

Part IV (Chapters 8 and 9) Hypothesis Testing and Confidence Intervals. Critical and p-values. Type I and Type II errors. Duality of Hypothesis Testing and Confidence Intervals.

Part V (Time Permitting) Selection Problems. Endogeneity and simultaneous equations.

**Grading** There will be four Problem Sets, two Midterm Examinations and a Final Exam.

Problem Sets: Even though they will not be collected or graded, it is VERY important to do them. The problem sets and additional practice problems are the best way to learn and be prepared for the exams.

Midterms: (50% of Final Grade) The first midterm will take place on October 20 and correspond to 20% of the final grade. The second midterm will be on November 15 and correspond to 30% of the final grade. Both will be in class.

Final: (50% of Final Grade) The 3:30pm section’s final is on December 5, while the 5:00pm section’s final will take place on December 9. Room will be announced when assigned by the Registrar.

Exam policies: You may use a calculator, a simple one is enough. All grading problems must be rectified within a week of being returned. You will have to show full work and derivations to receive full credit.

Curve: Only the final score will be curved and **only if necessary**. From past experience, don’t expect a curve at the top of the distribution, and only a mild one at the bottom. Each section will be curved independently.

## **Administrative Issues**

1. If you have a documented disability, please come to talk to me as soon as possible so that I can make suitable accommodations for you. If you believe that you have a disability and desire accommodation, please register with the Office for Students with Disabilities.
2. Students found guilty of academic dishonesty will earn a failing grade for the course. In addition, the Council of Deans of Student Affairs will impose a disciplinary penalty.
3. If you need to miss a midterm for a verifiable medical/legal reason, the rest of the exams will be reweighed so they account for 100% of your grade. Failure to notify me promptly that you must miss a midterm will result in a zero grade for that midterm. Unexcused absences will also result in a zero.
4. Because each section has different exams that are curved independently, you must take each midterm and final with the class you are enrolled in. In addition, each section's enrollment is close to the room capacity, so please attend lecture at your assigned section so everyone can have a seat.

**Webpage** It can be found on Ted. All problem sets and answer keys will be posted here.

**Sections** TAs will review material covered in class and go over solutions to problem sets as well as practice problems. While attendance is not mandatory, you may find them highly beneficial, especially if you are confused with the material being covered in class. There are two sections a week, though the material covered is exactly the same in each one: Thursdays 8:00pm to 8:50pm and 9:00pm to 9:50pm (in Solis 107). The first meeting for TA Sections will be on Thursday October 6.

**Software** All of the statistics in this course can be done using the Microsoft Excel spreadsheet program, which is available in the computer laboratory in Econ 100. You may use other econometric or statistical software. Data, problem sets and solutions will also be available from the class webpage.

**Teaching Assistants** The list of TAs and their office hours will be posted online.