ECON 120A-Introduction to Statistics
Spring 2017

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       114 Economics   Office Hours: Tue 10-11am

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 using a random sample from a population.

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.

If you earn an A/A- grade in my class this quarter, I recommend that you take the one-unit honors class 120AH in the fall. Honors classes are capped at 20 students and you will get to know the faculty member well (important for getting letters of recommendation). These classes typically have you give a short presentation and write a short paper. Presenting and writing in the major are two valuable skills that are challenging for us to offer in large classes. I recommend you take advantage of the 120AH opportunity.

Course Outline

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

Part II (3 weeks) (Chapters 3, 4 and 5) Basic Probability theory. Discrete and continuous Random Variables. Multiple Random Variables and their transformations.

Part III (3 weeks) (Chapters 6 and 7) Sampling and Point Estimation. Sampling distribution of an Estimator. Law of Large Numbers and Central Limit Theorem. Unbiasedness and Efficiency of estimators.

Part IV (3 weeks) (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

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.

Lectures and Discussion Sections

Lectures

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.

The schedule of lectures and discussion section can be checked at
https://act.ucsd.edu/scheduleOfClasses/scheduleOfClassesStudentResult.htm?page=3

Discussion Sections

There are weekly discussion sections for this course. They are not mandatory. However, it is HIGHLY encouraged since the TAs will go over practice problems, the kind of problems you may encounter on exams.

Ideally, you want to try working on the practice problems BEFORE you attend a discussion session so you have a better idea of where you need help from the TA's. Also, feel free to email the TA's in advance with suggestions on what problems to cover during the discussion session.

If you struggle to tackle your homework, we believe that PSET will be an efficient and effective way for you to learn how to think like an economist.

Practice Problems

The book has a lot of great problems to practice. In addition, I will assign extra practice problems every week. Even though they will not be collected or graded, it is VERY important to do them.

The book's problem and additional practice problems are the best way to learn and be prepared for the exams. The solutions to the problem sets will be covered by the T.A.s during the discussion sessions and solutions will be posted after the TA's have covered them.

Problem Solving and Economics Tutoring Center (PSET)

Learn to solve problems on you own!

The Economics Department is making a problem solving and tutoring center available to all students in Econometrics (120ABC) on M-TH 5:30pm-8:30pm and on Sundays from 2-6pm.

PSET webpage can be found at

https://economics.ucsd.edu/undergraduate-program/courses/pset-lab.html

The ability to apply the concepts from class to solve problems is the most important skill we want you master in our core classes. PSET is designed to help you learn to tackle problems successfully by having grad and undergrad TAs there to help you think through a problem—right when you get stuck.

I encourage you to take advantage of these great resource, especially if you feel that your background for this class is not particularly strong. Let the tutors help you as you work on the practice problems.

Teaching Assistants

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Exams and Grade

There will be two Midterm Examinations and a Final Exam.

Your grade will be determined as follows:

$$25\% \text{ Midterm 1 (April } 28^{th})$$
$$25\% \text{ Midterm 2 (May } 22^{nd})$$
$$50\% \text{ Final Exam (June } 15^{th})$$

Midterm Exams (50% of Final Grade):

The first midterm will take place on April 28th during the usual lecture time and correspond to 25% of the final grade.

The second midterm will be on May 22nd during the usual lecture time and correspond to 25% of the final grade.

Final Exam (50% of Final Grade)

The final is on June 15th, from 11:30 am until 2:30pm. Room will be announced by the registrar and can be checked at:

https://act.ucsd.edu/scheduleOfClasses/

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.

There are NO makeup exams. 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.

Final Grade

The final grade for this exam will be curved following the economics department guidelines. This means you will be evaluated by your performance in the class relative to the performance of other students. If you have any questions about the curve, please come and see me.

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. If you choose to use a laptop to take notes during the lecture, please sit in the back row. No other use of electronic devices is allowed during class.
3. Students found guilty of academic dishonesty will earn a failing grade for the course. In addition, the Council of Deans of Students Affairs will impose a disciplinary penalty.
4. If you arrive late to an exam, I will allow you to take the exam in the time that remains as long as no one has turned in his/her exam.