University of California, San Diego
Department of Economics
Spring 2019

ECON 120A: Probability and Statistics

Prof. Augusto Nieto Barthaburu
Email: anieto@ucsd.edu
Lectures: Sections A01-02: TuTh 8:00-9:20 AM at Center Hall 105
             Sections B01-02: TuTh 9:30-10-50 AM at Center Hall 105
Office Hours: Tu 1:30-3:00 PM
Office: Economics Bld. 113

Text
Wonnacott, T.H. and R. J. Wonnacott (1990), Introductory Statistics for Business and Economics, 4th edition, John Wiley and Sons: New York.

Copies of the textbook are available on reserve at Geisel Library.

There will be an e-book available on TritonEd, that you can purchase for $32 (there will be a link to the book on the left hand side of the TritonEd page). **This is an opt-out system**: you must opt out before 4/13/2019 or you will be charged for the textbook access by UC San Diego.

In addition to the course's textbook, there are many online statistics textbooks and notes. Here are a couple that you may find useful:

Philip Stark, a Berkeley statistician, has a free online textbook for his business and economics statistics class:
http://statistics.berkeley.edu/~stark/SticiGui/Text/index.htm

UCLA has a free probability and statistics textbook:
http://wiki.stat.ucla.edu/socr/index.php/Probability_and_statistics_EBook

Software
The software for this course is the Microsoft Excel spreadsheet program, which is available in the computer lab in Econ 100, and in other computer labs on campus.

Course Description
Econ 120B is the first course of the Econometrics sequence. It is designed to introduce you to the science of Statistics. It will provide you with the building blocks necessary to later learn rigorous econometric analysis. These building blocks include probability distributions, samples and sampling distributions, point and interval estimation as well as hypothesis testing. These are formal methods used by statisticians to learn about the real world from data.

Course website
We will use a web page located at https://tritoned.ucsd.edu/. We will post information relevant to the course, the syllabus, lecture notes, problem sets, solutions, etc. You should check this page regularly.

Grading
Homework: 10%.
Midterm: 40%, in class on Tuesday, May 7.
Final: 50%, please check the schedule of classes for time, date and room.

Homework
Homework is an integral part of this course -- the best (maybe the only) way to learn statistics is to practice it. The assignments will be posted on the course's website. Students may work together on problem sets, although solutions must be written up and handed in separately. It is a good idea to attempt the problems on your own before meeting with a group, so that you fully understand them (and can help out your friends). While you may collaborate with others, any homework you turn in must represent your own work.

Solution keys to the homework will be posted on the class web page. Late problem sets will not be accepted for any reason; if you cannot attend the class or section when a homework is due, you can either have a classmate turn in your homework for you, or you can turn it in on a previous day in lecture or in any office hours, mine or the TAs'. **Emailed homework will not be accepted.**

Discussion sections
There will be weekly discussion sections for the class. The TAs will go over the HW and other problems in detail in sections, so it is very important that you attend. Please refer to the schedule of classes for time and location.

Teaching Assistants

Name	Email	Location	Office Hours
Julian Martinez Iriarte	jum024@ucsd.edu	Econ 300	PSET
Wanchang Zhang	waz024@ucsd.edu	Econ 300	PSET
Jinhyeon Han	jih420@ucsd.edu	Econ 300	PSET
Chris Lin	zclin@ucsd.edu	Econ 300	PSET

The PSET Tutoring Lab
The Economics Department makes a problem solving and tutoring center available to all students in econometrics (120ABC) on certain evenings and on weekends. 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.
If you struggle to tackle your homework, PSET will be an efficient and effective way for you to learn how to think like an economist.

The PSET sessions are in ECON 300, certain afternoons or evenings, plus weekends. Exact times will be posted at the Econ. Dept. website during the first week of the quarter at https://economics.ucsd.edu/undergraduate-program/courses/pset-lab.html.

Future Opportunities
Econ 120BH: If you earn an A+/A/A- grade in my class this quarter, I recommend that next year you take the one-unit honors class 120BH in the winter and the 120CH in the spring. 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. I recommend you take advantage of the 120BH and 120CH opportunities.

There are other honors sections for the core Economics courses that you may also consider. The full schedule of honors sections is the following:
100AH and 120AH: fall
100BH and 120BH: winter
100CH and 120CH: spring
110AH and 110BH —both in winter

Administrative Issues:
1. If you have a documented disability, please talk to Brittany Thompson at Sequoyah Hall 245. Bring your documentation with you. Do it as soon as possible so that we can make suitable accommodations for you.

2. 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 and left the room**. If a classmate has already turned in his/her exam by the time you arrive, you will earn a zero on that test.

3. If you have to miss a midterm **for a medical or other University approved reason**, the weight of that exam will be allocated to the final exam. In that case, you will need to provide proof of your situation. The weights will not be reallocated for any other reason.

4. All students must take the final exam at the scheduled date and time, so if you have any conflicts with other exams you are advised not to take this course (or the other courses that this course's exam conflicts with).

5. UCSD now has automated waitlists. If you have any questions regarding adding the course, please contact the undergraduate advisors in Sequoyah Hall 245.

6. **Academic dishonesty will not be tolerated.** Students are expected to do their own work, as outlined in the UCSD Policy on Integrity of Scholarship. All suspected cases of academic dishonesty will be reported to the Academic Integrity Coordinator. In addition to the penalties imposed by the Academic Integrity Review Board, **I also reserve the right to fail students found guilty of academic misconduct**.

Course Outline

Part 1: Introduction

1. Introduction to Statistics

Ch. 1

2. Descriptive Statistics: mean, median, range, variance, etc.

Ch.2

Part 2: Basic Probability

3. Random Variables and Probability

Ch. 3

4. Probability Distributions

Ch. 4

5. Two Random Variables

Ch. 5

Part 3: Inference about the Mean

6. Point Estimate of the Population Mean

Ch. 6 and 7

7. Law of Large Numbers and Consistency of the Sample Average

Ch. 6 and 7

8. Sampling Distribution of the Sample Average

Ch. 6 and 7

9. Confidence Interval and Hypothesis Testing about the Mean

Ch. 8 and 9