

Econometrics A

Econ 120A, Winter 2020

Course description: As the first of the econometrics sequence, this course is designed to provide the student with the statistical fundamentals of probability, estimation, and hypothesis testing that are necessary to understand the other Econometrics courses and theory/field courses. Students will be expected by the end of the course to understand the foundations of modern statistical analysis in preparation for 120B and 120C.

Course web page: A course web page is available at <https://coursefinder.ucsd.edu/>. It will include information relevant to the course, such as syllabus, problem sets, data sets and more. **You should check this page regularly.**

Prerequisites: 1. Econ1 (Principles of Microeconomics)
and 2. Math 10C (Calculus III) or Math 20C (Calculus & Analyt Geom/Sci& Engr)
or Math 31BH (Honors Multivariable Calculus)

Lectures: MWF 1) Section A: 9:00 – 9:50 am @ PCYNH 122
2) Section B: 12:00 – 12:50 pm @ Solis 104
3) Section C: 1:00 – 1:50 pm @ Solis 104

Instructor: Dr. Munpyung O

- Office: Economics 109
- Office hours: 2:30 – 3:30 pm on Mondays and 10:30 – 11:30 am on Fridays, and by appointment.
- e-mail: m1o@ucsd.edu

Please use your **ucsd email** and include “**Econ 120A**” in the subject line of your email. The professor and TAs will respond to **thoughtful** emails. We cannot answer all the questions through emails since some questions are hard to answer through emails.

TA discussion sections:

- 1) Section A: Mondays 6:00 – 6:50 pm and 7:00 – 7:50 pm @ PETER 104
- 2) Section B: Tuesdays 7:00 – 7:50 pm and 8:00 – 8:50 pm @ PCYNH 122
- 3) Section C: Fridays 3:00 – 3:50 pm and 4:00 – 4:50 pm @ WLH 2204

Teaching Assistants:

- 1) Section A: Lee, Youngju, yol006@ucsd.edu
- 2) Section B: Hall, Zachary, z1hall@ucsd.edu, Faridani, Stefan, sfaridan@ucsd.edu
- 3) Section C: De Vries, Tjeerd, tjdevrie@ucsd.edu, Pellatt, Daniel, dpellatt@ucsd.edu

Undergraduate TA (UIA): Hu, Shiyu, shh190@ucsd.edu

Readers: Nguyen, Lam, Lu, Jiajun, and Wang, Yang

Lectures and discussion section: 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 is a weekly discussion section for this course. You are **strongly** recommended to attend it since the TA will review material covered in class, and also introduce material not covered in class and go over practice problems, the kind of problems you may encounter on exams. You will also be able to ask the TA any question about the material covered in the lectures during the discussion section.

Problem Solving and Economics Tutoring (PSET) Center: The Economics department has made a problem solving and tutoring center available to all students in Econometrics (120ABC). 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, we believe that PSET will be an efficient and effective way for you to learn how to think like an economist.

PSET schedule: From week 2 to week 10

- Monday – Thursday: 5:30 pm - 8:30 pm @ Econ 300
- Sunday: 4:00 pm - 8:00 pm @ Econ 300

Actual hours will be posted here: <https://economics.ucsd.edu/undergraduate-program/courses/pset-lab.html>

Course materials:

- Required textbook: T. H. Wonnacott and R. J. Wonnacott, *Introductory Statistics for Business and Economics*, John Wiley and Sons, Fourth edition, 1990. 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.
 - Your digital course materials are provided by the UC San Diego Bookstore through Canvas and are 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. If you decide to opt out you must complete the process by Saturday, January 18th 2020 and you will be responsible for sourcing the materials elsewhere.
 - To opt-out:
 - 1) Click the RedShelf link in Canvas
 - 2) Click View Course Materials
 - 3) Scroll down to the grey opt-out button and follow the prompts
 - For any questions about billing please contact textbooks@ucsd.edu.
- Required Statistical Software: Stata
Our school has a site license for Stata/SE 16. You can download and install Stata in your computer freely. The code, serial number, software file, and Stata installation guide have been posted on Canvas. This software will be used in 120B and 120C as well.

Problem sets: I will periodically assign problem sets throughout the course. Even though they will not be collected or graded, it is VERY important to do them. The problem sets are the best way to learn and be prepared for the exams.

Exams: Midterm 1: 7:00 pm – 8:20 pm on Friday, January 31.
Midterm 2: 7:00 pm – 8:20 pm on Friday, February 14.
Final exam: 11:30 am – 2:30 pm on Saturday, March 14.

- The dates for the exams are not negotiable. If you have a conflict with the scheduled tests, it is your responsibility to drop the course.
- The final exam will be cumulative, but focus more on the material covered after the midterms.
- All tests are closed book and notes.

Makeup exams: Make-up examinations will be given only under very unusual circumstances and only if the student provides official written notification to the instructor no less than two weeks prior to the missed test. Students who miss a test without a **justifiable** and **verifiable** reason, will most likely fail the course. No exception!

Grades: The overall score will be computed as follows:

- Midterm 1: 20%
- Midterm 2: 30%
- A comprehensive final: 50%

There is no opportunity in this course to do “extra credit” work. Your grade will be determined solely by the components listed above. The overall course grade, computed using the weights specified above, will be curved. **I reserve the right to modify these weights as needed during the quarter.**

Disability: If you have a documented disability, please bring your documentation 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.

Class conduct: Each student is expected to contribute and help to maintain a positive classroom environment conducive to learning. Do not socialize or read newspapers during class, and be sure your cell phones are turned off. No text messaging is allowed. If you must arrive late or leave early, do so quietly.

Academic integrity: Any student found responsible for violating UCSD’s academic integrity policy will earn a failing grade for the course. In addition, the Council of Deans of Student Affairs will impose a disciplinary penalty. You can find information on the university’s policy on academic integrity at this website: <http://academicintegrity.ucsd.edu>

General comments

- Even if I don’t explicitly assign reading from the text, it is a good idea to read the chapter before coming to class in order to have some understanding of the concepts to be presented.
- ***This class moves rapidly.*** *Cramming* is not an effective way to learn this material. A student who keeps up with the topics as they presented will find the course much more enjoyable and will master the concepts more quickly.
- **Attend all lectures.** You are responsible for any information given during lectures.
- Please do use my office hours for everything related to the content of the course. If you have doubts about the materials, do not wait until a few hours before the exam.
- Students are encouraged to ask questions in class. You’ve probably heard this before, but if you have a question, chances are that others in the class have the same question.
- Finally, ask questions before, during, or after class or come to my office if you having any trouble with the course material. Remember the goal of education is to learn, not to suffer!

Course content and schedule (Changes, if any, will be announced in the class.)

The following course schedule should be considered tentative, and will likely change depending on our pace through the quarter. I reserve the right to modify this schedule as needed during the quarter.

1. (Week 1 - 3) Descriptive Statistics: Chapter 1, 2
 - Introduction: Statistical decision making
 - Population vs Sample
 - Data collection and sampling
 - Data description: Organizing, summarizing, and presenting data

2. (Week 3 - 5) Random variables and distributions: Chapter 3, 4
 - Data and randomness
 - Random variable
 - Computing probabilities
 - Probability distribution - A characterization of random variable
 - Functions of a Random variable: Use of random variables

3. (Week 6 - 8) Inferential statistics: Chapter 6, 7, 8, 9
 - Sampling
 - Sampling distribution and sample statistics
 - Law of Large Numbers, convergence in distribution and Central Limit Theorem.
 - Estimation
 - Hypothesis testing

4. (Week 9 - 10) Two or more random variables: Chapter 5, 11.1
 - Joint distributions, Conditional expectation
 - Relationship among random variables: Causality, Covariance, Correlation
 - Testing differences between multiple statistics
 - Test for independence

I reserve the right to add and/or subtract topics as the course progresses. Not all topics will be covered in the same detail. Time constraints may cause some topics to be omitted.