Econometrics A
Econ 120A, Spring 2021

As you all know, we are in the middle of a global COVID-19 pandemic, which has required dramatic changes to how we teach and learn. All instruction will be conducted remotely using Zoom and Canvas. Our hope and aim this quarter is to provide as high quality and intellectual experience for students as would have been the case if we were to have been able to meet in person. Of course, there will be some trial and error and we will need to make adjustments along the way. Not everything we do is going to work and we need your cooperation.

The information below should be considered extremely tentative, and will likely change depending on our pace and situation through the quarter. I reserve the right to modify this information as needed. Please check the syllabus and Canvas announcements regularly for updates.

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 http://canvas.ucsd.edu/. It will include information relevant to the course, such as syllabus, announcement, homework, 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& Engnr)
or Math 31BH (Honors Multivariable Calculus)

Lectures on Tuesday and Thursday

- Section A00: 11:00 am – 12:20 pm @ https://ucsd.zoom.us/j/96630627328
- Section B00: 12:30 pm – 1:50 pm @ https://ucsd.zoom.us/j/93494548746

Instructor: Dr. Munpyung O

- Office hours: 9:30 – 10:30 am on Thursday, and by appointment @https://ucsd.zoom.us/j/6571145643.
- e-mail: m1o@ucsd.edu

  Please use your **ucsd email** and include **"Econ 120A: Section A" or "Econ 120A: Section B**" in the subject line of your email.

Teaching assistants and UIAs:

Hall, Zachary	TA	z1hall@ucsd.edu	Section A
Lee, Youngju	TA	yol006@ucsd.edu	Section A
Zhou, Gongyu	UIA	gozhou@ucsd.edu	Section A
Shiao, Alexander	UIA	ashiao@ucsd.edu	Section A
Bae, Hannah	TA	hbae@ucsd.edu	Section B
Goldstick, Connor	TA	cgoldsti@ucsd.edu	Section B
He, Yujian	UIA	y9he@ucsd.eduu	Section B

TA discussion sections (First 5 weeks):

- Section A: 7:00 - 7:50 pm and 8:00 - 8:50 pm on Wednesdays

  Lee, Youngju, yol006@ucsd.edu @ https://ucsd.zoom.us/j/96299524314

- Section B: 5:00 - 5:50 pm and 6:00 - 6:50 pm on Thursdays

  Bae, Hannah, hbae@ucsd.edu @ https://ucsd.zoom.us/j/91724688627

- The first discussion sessions will take place on April 7th for section A and 8th for section B.

Office hours (First 5 weeks):

1) Monday	5:00 - 6:00 pm	(TA: Lee, Youngju)	https://ucsd.zoom.us/j/96099507994
2) Tuesday	7:00 - 8:00 pm	(UIA: Shiao, Alexander)	https://ucsd.zoom.us/j/8810385596
3) Wednesday	10:00 - 11:00 am	(TA: Bae, Hannah)	https://ucsd.zoom.us/j/91724688627
4) Thursday	9:30 - 10:30 am	(Dr. O)	https://ucsd.zoom.us/j/6571145643
5) Friday	5:00 - 6:00 pm	(UIA:Zhou, Gongyu)	https://ucsd.zoom.us/j/99933073317
6) Saturday	10:00 - 11:00 am	(UIA: He, Yujian)	https://ucsd.zoom.us/j/6432085978

Lectures and discussion section: Lectures, discussion sessions, office hours, and tests will be delivered remotely. Both lectures and TA's discussion sections will be recorded and made available to students asynchronously. It is important to come to every lecture. There is a weekly discussion section for this course. You are **strongly** recommended to attend (watch) it since the TAs 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 TAs any question about the material covered in the lectures during the discussion.

Use of course materials: Class material includes the video lecture recordings, lecture slides, the problem sets, the problem set solutions. They are all subject to copyright. They are designed for you and for you only. You cannot share them without permission with anyone outside of the course. If you need that permission please email me about it.

Required textbook: Anderson, Sweeney, Williams, Camm, Cochran, Fry, Ohlmann, *Essentials of Statistics for Business & Economics*, Cengage, 9th edition.

- 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, April 10, 2021 and you will be responsible for sourcing the materials elsewhere.

WebAssign: Digital platform that will include homework assignments.

- I will periodically assign homework throughout the course, and the lowest assignment scores will be dropped before computing your homework grade.

- You will have several attempts (3 by default) to complete your homework assignments, so you will be able to achieve a 100% score if you put enough effort into it.

- Complete all your homework assignments on your own. Remember homework is assigned to assist you in learning, and it provides a good check of your understanding of the statistical concepts taught in class.

Exams: 1. Practice test on week 3.

2. Midterm 1 on Tuesday, April 27.
3. Midterm 2 on Thursday, May 20.
   Both midterms will take place in class time.
4. Final exam: Section A00: 11:30 am - 2:30 pm on Tuesday, June 8.
   Section B00: 11:30 am - 2:30 pm on Monday, June 7.

You must take tests in your registered section. It is the student's responsibility to create a schedule that does not have any conflicts. All tests are cumulative. **I reserve the right to give an oral test if I feel it is necessary to uphold academic integrity**.

"We will use LockDown browser/Respondus monitor for proctoring this quarter. This program use video and audio recording or other personal information capture for the purpose of facilitating the course and/or test environment. UC San Diego does not allow vendors to use this information for other purposes. Recordings will be deleted when no longer necessary. However, if cheating is suspected, the recording may become part of the student's administrative disciplinary record."

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 a week prior to the missed test. Students who miss a test without a **justifiable** and **verifiable** reason, will most likely fail the course.

Grades: The overall score will be computed as follows:

- Homework: 10%
- Practice test: 3%
- Midterm 1: 21%
- Midterm 2: 28%
- Final exam: 38%

There is no opportunity in this course to do "extra credit" work. Your grade will be determined solely by the test scores. The overall course grade 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.

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

Technical resources for students:

- Digital Learning: https://keeplearning.ucsd.edu
- Ed Tech support: Students needing technical assistance should contact servicedesk@ucsd.edu or 858-246-4357.
- COVID-19 Information: https://vcsa.ucsd.edu/news/covid-19-info.html
- Our undergraduate advisors are able to answer all questions from students, regarding Department and University policies, procedures, and processes. Students to contact them through the Virtual Advising Center: https://a5.ucsd.edu/tritON/profile/SAML2/Redirect/SSO?execution=e2s1

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 on time**. You are responsible for any information given during lectures.
- Please do use my office hours or TAs 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.)

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 - 3
   - Introduction: Statistical decision making
   - Population vs Sample; Parameters vs Statistics
   - Data collection and Random sampling
   - Data description: Organizing, summarizing, and presenting data
2. (Week 3 - 5) Random variables and distributions: Chapter 3 - 6
   - Data and randomness
   - Random variable
   - Computing probabilities
   - Probability distribution - Statistical characterization of random variable
   - Functions of a random variable: Use of random variables
3. (Week 6 - 8) Inferential statistics: Chapter 7 - 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 2.4, 3.5, 5.4
   - 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.