

Econ 120C: Econometrics

Professor Yixiao Sun
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1. Teaching Team

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2. Organization

Disclaimer I: The information below reflects the official schedule of classes as of March 25, 2021. Please check the schedule for updates.

Disclaimer II: Given the uncertainty due to the pandemic, some of the details on the syllabus may change. Please check Canvas regularly for updates.

Delivery and class time

We will use Zoom and Canvas heavily.

- The lecture and discussion sessions will be delivered live, remotely via Zoom.
- The lecture meeting time for Sections 38676-38678: 9:30am – 10:50am from Tuesdays and Thursdays.
- The lecture meeting time for Sections 38680: 12:30pm – 1:50pm from Tuesdays and Thursdays.
- The discussion meeting time: Please check the schedule of classes.
- For both lecture and discussion sessions, you are welcome to attend any session. The materials covered are identical.

- Please log onto canvas.ucsd.edu to get Zoom links (under “Zoom LTI PRO”).
- All lecture sessions and discussion sessions will be recorded and made available asynchronously via Canvas under “Media Gallery.”
- Depending on the feedback from the class, we may adopt a mix of live sessions and asynchronous videos.

Office hours

We will hold our office hours via Zoom. Zoom links will be posted on Canvas (under “Zoom LTI PRO”)

Communications

1. We are available for questions during our office hours and discussion sessions.
2. You can post your questions to the discussion board on Canvas. We will check the discussion board regularly and answer your questions there.
3. You are welcome to email us. However, we feel that email is not a very efficient way to ask econometric questions, especially when equations are involved. We prefer to meet with you on Zoom during our office hours. When you email us, please include ECON120C in the subject line. (This is a good practice for any course)
4. As your instructors, we do not have any control over enrollment, waiting list, and any other administrative issues. These matters are handled by the department’s undergraduate advising office.

3. Course Description

Econ 120C is a sequel to Econ 120A and Econ 120B. The objective of the course is to provide you with knowledge of econometrics in theory and applications. By the end of the course, you should be skilled users of basic econometric methods. These methods are also widely used in business, finance, and other fields. You should be able to interpret empirical studies in ways that are interesting, enlightening, and useful. You should also be aware of potential problems in using regression analysis to make causal inference and know how to make corrections if these problems are present.

Throughout, we will focus on both understanding and doing. The understanding part will come from lectures and discussion sessions. The doing part will come from problem solving and extensive statistical software use. This course requires serious commitment. Econometrics is best learned by doing, and you will be asked to do a fair amount of hands-on work.

Prerequisites

ECON120C is the sequel to ECON120B. You are expected to have a thorough grasp of the material covered in Econ120B, namely, the linear regression model. In addition, you are expected to be familiar with basic statistics and probability, and to have some working knowledge in calculus.

Textbook

The required textbook for this class is **Introduction to Econometrics**, by James Stock and Mark Watson (the fourth edition). The book will be available as an eBook through Canvas. Note that the lectures will cover many additional materials not found in the textbook.

The eBook and any other digital course materials, if any, are provided by the UC San Diego Bookstore through Canvas and are free for the 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 **April 10, 2021** and you will be responsible for sourcing the materials elsewhere.

For any questions about billing please contact textbooks@ucsd.edu.

For any questions about using your eBook please reference RedShelf Solve at ??

To opt-out:

Click the RedShelf link in Canvas

Click View Course Materials

Scroll down to the gray opt-out button and follow the prompts

Econometrics Video Handbook

The course will follow the Econometrics Video Handbook (EVH) fairly closely. The EVH is available through Canvas. For some topics, you may be asked to watch videos in the EVH. I will email you which video(s) to watch. The EVH is the product of the department's most recent effort in modernizing econometric training at UCSD.

Main Topics (subject to change)

Part I. Review of Econ120A/120B.

Part II. Correlation and Causality; Threat to the validity of OLS for causal inference

Part III. Panel Data Models

Part IV. IV and 2SLS

Part V. Experiments and Quasi-experiments

Part VI. Big Data if time permits

4. Software

You will have to use the statistical software package Stata to solve some assignment problems. Download and license information is available on Canvas. Please do not distribute the license information outside of UCSD. It is against the law.

5. Assessment

Assignments (15%)

There will be eight assignments, each of which will carry a weight of 1.875% towards the final class grade. Assignments will be graded on three scales. A score of 50% will be given to an assignment which is clearly incomplete, but has made a start towards answering some of the questions. A score of 75% will be given to an assignment which is largely complete, but does not answer every question in full. A score of 100% will be given to an assignment which is clearly well-done, and answers all of the assigned problems.

The assignments will involve both theoretical and empirical work. If you have any question on the problem sets, please ask me or TA during our office hours. Our office hours are for you.

Answers to assignments are to be submitted via Canvas. You can scan your answer into a pdf using a free app on your smart phone. **DO NOT** email assignments.

Assignments are due at 11:59pm on Fridays. Late answers will not be accepted! The lowest assignment score will be dropped (if you are happy with the first seven scores, you do not need to submit the last assignment). The average of the rest seven scores will be counted toward your final grade. The tradeoff for this benefit is that we will be strict about not accepting late assignments.

For each assignment, a solution will be posted on Canvas after its due date. The solution will be posted together with the assignment. **Some assignment problems will appear in the exams.**

Midterm Exam (35%) and Final Exam (50%)

There will be one midterm exam and one final exam.

Midterm Exam Time: 04/30/2021; 2:00p-3:20p

Final Exam Time: 06/05/2021; 3:00p-5:59p

- Both exams will be delivered via Canvas. Please make sure you have a good and stable internet connection.
- Both exams will be closed-book. No calculator is needed. You are not supposed to get assistance from others or post your question on the Internet during an exam. You are not allowed to use any search engine. You can bring ONE page (double-sided, no larger than 8.5in by 11in) of note. It must be hand-written; photo reducing and pasting are not permitted. The one-page policy applies to both the midterm exam and the final exam.

- There will be no make-up exam. If you miss the midterm for a verifiable medical reason, I will increase the weights of the final exam proportionally. Failure to notify me promptly that you must miss the midterm will result in a zero grade. Unexcused absences will also result in a zero.
- We will use Zoom to proctor the exams. We may ask you to show your student ID card. You are required to record your computer screen (only one monitor is allowed), desktop, and surroundings using Zoom, and share the recording via Canvas. Failure to provide a proper recording will result in a zero grade for the exam.
- There will be no make-up exams. An exception is medical absence, in which case a doctor's certificate is required. Please scan and email the doctor's certificate **as soon as possible**. Failure to notify us before or on the exam date will result in a zero grade.

Grading

The course grade will be assigned as follows. First, the weighted average of numerical scores will be obtained. Suppose your scores on the assignment are 75, 50, 100, 100, 100, 100, 100 and 75. Your midterm and final exam scores are 82 and 85, respectively. Then, after dropping 50, the lowest assignment score, the weighted average is $(75 \times 2 + 100 \times 5) / 7 \times 0.15 + 82 \times 0.35 + 85 \times 0.50 = 85.129$. The weights on the assignments, the midterm, and the final exam cannot be changed. Second, if the class mean of the weighted average is below 72.5 points, points will be added to all scores to bring the mean score to 72.5 points. Finally, letter grades will be assigned using the following scale:

≥ 90 A+	[75,80) B+	[60, 65) C+	[45 50) D
[85,90) A	[70,75) B	[55, 60) C	< 45 F
[80,85) A-	[65,70) B-	[50, 55) C-	

Note that the scale is exact. So if your score is 85, you will get an A.

6. Other policies

If you have a documented disability, please email me your documentation 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.

Students who violate 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.