UCSC Department of Economics  
Summer Session I - 2020  

ECON 113: Introduction to Econometrics

Instructor
Prateek Arora  
(prateek@ucsc.edu)  
Office Hours: W: 10am – 12 noon  
Zoom meeting ID: 849-256-8038

Lectures
Tue/Thu 09:00 AM – 12:30 PM.  
Zoom Meeting ID: 912-311-46515  
Make sure to sign in to Zoom and register to the Lecture with your full first and last name.

Teaching Assistants

<table>
<thead>
<tr>
<th>Name</th>
<th>Zoom Meeting ID</th>
<th>Office Hours</th>
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<tbody>
<tr>
<td>Yunxiao Zhang</td>
<td><a href="https://ucsc.zoom.us/j/5274665451">https://ucsc.zoom.us/j/5274665451</a></td>
<td>F: 02:30 pm – 04:30 pm</td>
</tr>
<tr>
<td>Yanshuo Chen</td>
<td><a href="https://ucsc.zoom.us/j/94008058820">https://ucsc.zoom.us/j/94008058820</a></td>
<td>M: 11:30am – 01:30 pm</td>
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Sections

- Friday : 10 am – 12 noon,  
  TA: Yunxiao Zhang – yzhan149@ucsc.edu  
  Zoom Link : https://ucsc.zoom.us/j/5274665451
- Monday : 09:30 am – 11:30 am,  
  TA: Yanshuo Chen – ychen403@ucsc.edu  
  Zoom Link : https://ucsc.zoom.us/j/94008058820

Discussion sections will not be substitute to the lectures. Rather they would provide additional practice for applications as well as getting you comfortable with STATA. You are encouraged to attend sections to score well.

Tutoring (Learning Support Services)

Austin Cho - aujcho@ucsc.edu

Any conflicts with lecture attendance or in class participation grading must be discussed with the instructor during the first week of class. Please contact me immediately if you do not expect to be able to join most lectures real-time (e.g. if you do not have access to reliable wi-fi or if you are in a very different time-zone).
**Course Description**
This course covers methods for organizing and analyzing economic data, testing economic hypotheses, and measuring economic relationships. Regression analysis is the main empirical method, and basic statistical and probability theory is included. Students gain intuition behind commonly used methods in econometric analysis as well as hands-on computer experience with Stata.

**Learning Objectives**
Students will:
1. have a deeper understanding of economic statistics, econometrics, and have greater confidence in its application.
2. learn the basics of ordinary least squares (OLS) model estimation and interpretation, with its advantages and disadvantages.
3. learn about OLS model specification and estimation, with applications in a wide range of economic topics (labor, health, crime, monetary policy, etc.)
4. learn about using OLS to make predictions, and the caveats in doing so.
5. Understand the assumptions underlying the classical linear regression model, and strategies to overcome its limitations.

**Enrollment Requirements**
Prerequisite(s): Courses 1 and 2; Statistics 5 or 7; and one of the following: course 11B, Applied Mathematics 11B, Mathematics 22, or Mathematics 23A. Courses 100A or 100B strongly recommended as preparation.

**Recommended Textbook**

UCSC Library Research Services has provided following access to the textbook through The Internet Archive:
Currently, The Internet Archive is offering two digitized copies. These titles have been contributed by the community of users, so please note that these could potentially be removed at any time. The URL for accessing these is:
[Link for accessing the textbook](https://archive.org/details/wooldridgeintroductoryeconometricsamodernapproach)

**Software**
This quarter, Stata has offered us licenses for Econ 113 students! Download Stata now. The instructions are available on the Canvas document “Download Instructions for Stata.” DO NOT SHARE THE DOWNLOAD INSTRUCTIONS WITH ANYONE. We have a limited number of licenses and if you share them some of your classmates will not be able to download Stata without paying. Stata IC is sufficient for this class ($45 for 6 months license, installed on 3 computers) Stata GradPlan: [http://www.stata.com/order/new/edu/gradplans/student-pricing/](http://www.stata.com/order/new/edu/gradplans/student-pricing/)
Grades
Assignments: 25%, Classroom activities: 75%. (NO midterms and finals. Hurrahhhh!!!)

Assignments (25%): There will be 5 assignments during the course. Each assignment is worth 5% of your total grade.

Assignments provide an opportunity to practice econometric methods and understand the underlying intuition. Working on the assignments will also help you prepare for classroom activities. They are vital to understanding the course material. All assignments will also include a section that requires analyzing real world data using STATA.

Assignments must be turned in online, via Canvas, in a readable format. Assignments are graded based on completed work and effort only. This is an opportunity for you to practice the type of questions you will see in the classroom activities, so no penalty on getting questions wrong. After uploading your work, make sure that the file can be downloaded and is legible.

Each assignment is due on Tuesday at 8 am. For instance, first assignment is due on June 30th and subsequent assignments are due in subsequent weeks. Late assignments will not be accepted.

Classroom activities (75%): During lecture, we will have two graded classroom activities - quizzes (25%) and tests (50%). Some will be in teams and others will be individual work. These activities will cover material from the current and/or previous class.

Quizzes: Quizzes will be shorter (5 minutes or less) covering material from current week’s classes. They may be given at the beginning, middle, or end of the class. The goal is to engage students in the lecture and ensure that students are following the material being taught. The lowest score on 2 quizzes will be dropped.

Tests: Tests would be longer (10 minutes or more) covering cumulative material.

Make-up will be provided on each class day at 9 pm on Canvas. Everyone is eligible for make-up quizzes and tests. Best of the score will be considered for grading.

Extra credit of 0.5 per quiz for in class quizzes and 1 credit for in class tests would be provided (conditions applied). Extra credit of upto 5 points could be earned through in-class participation.

The weightage of classroom activities towards the final grade would be at a progressive rate

<table>
<thead>
<tr>
<th>Week 1</th>
<th>5%</th>
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<tr>
<td>Week 2</td>
<td>10%</td>
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<td>Week 3</td>
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<td>Week 4</td>
<td>20%</td>
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<td>Week 5</td>
<td>25%</td>
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**Regrading:**
Requests must be submitted within three days of the grade release. With the exception of cases of simple arithmetic mistakes (points added incorrectly), the requested test/quiz is regraded from scratch and the regraded score may be higher or lower than the original. In practice, regrades rarely result in changes in the grade.

**Important Summer Session Remote 2020 Deadlines:**

Session 1:
Add: Thursday, June 25
Drop: Monday, June 29
Request for “W”: Friday, July 10
Change Grade Option: Friday, July 10

Summer is unique. You will not be dropped for non-attendance or non-payment. You must drop yourself. Dropping before the deadline results in a full-tuition reversal/refund. Withdraw posts a W for the grade and full tuition is charged (no refund).

For all dates and deadlines, including ‘change of grade option’ (P/NP) and grades due, here is the summer academic calendar: https://summer.ucsc.edu/studentlife/index.html

For questions about dropping, requesting a W grade for a course, or withdrawing from the summer quarter, email summer@ucsc.edu.

**DRC Remote Accommodations:**

The Disability Resources Center reduces barriers to inclusion and full participation for students with disabilities by providing support to individually determine reasonable academic accommodations. Operations continue via remote appointments. If you have questions or concerns about exam accommodations or any other disability-related matter, email the DRC Schedulers at drc@ucsc.edu for an appointment.

**Academic Dishonesty**

Academic integrity is the cornerstone of a university education. Academic dishonesty diminishes the university as an institution and all members of the university community. It tarnishes the value of a UCSC degree. All members of the UCSC community have an explicit responsibility to foster an environment of trust, honesty, fairness, respect, and responsibility. All members of the university community are expected to present as their original work only that which is truly their own. All members of the community are expected to report observed instances of cheating, plagiarism, and other forms of academic dishonesty in order to ensure that the integrity of scholarship is valued and preserved at UCSC. In the event a student is found in violation of the UCSC Academic Integrity policy, he or she may face both academic sanctions imposed by the instructor of record and disciplinary sanctions imposed either by the provost of his or her college
or the Academic Tribunal convened to hear the case. Violations of the Academic Integrity policy can result in dismissal from the university and a permanent notation on a student’s transcript. For the full policy and disciplinary procedures on academic dishonesty, students and instructors should refer to the Academic Integrity page at the Division of Undergraduate Education.

**Title IX:**

The university cherishes the free and open exchange of ideas and enlargement of knowledge. To maintain this freedom and openness requires objectivity, mutual trust, and confidence; it requires the absence of coercion, intimidation, or exploitation. The principal responsibility for maintaining these conditions must rest upon those members of the university community who exercise most authority and leadership: faculty, managers, and supervisors. The university has therefore instituted a number of measures designed to protect its community from sex discrimination, sexual harassment, sexual violence, and other related prohibited conduct. Information about the Title IX Office, the online reporting link, applicable campus resources, reporting responsibilities, the UC Policy on Sexual Violence and Sexual Harassment, and the UC Santa Cruz Procedures for Reporting and Responding to Reports of Sexual Violence and Sexual Harassment can be found at titleix.ucsc.edu. The Title IX Office is actively responding to reports and requests for consultation. If you are not currently working with someone in the office and want to make a report/request a consult, you can expect the fastest response by using our online reporting link. For more information please visit the Title IX Operations under Covid-19 page.

**Course Outline and Reading**

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<th>Topic</th>
<th>Chapters</th>
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<tr>
<td>Introduction to Econometrics</td>
<td>Wooldridge 1.1-1.2</td>
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<tr>
<td>Types of data and Sampling</td>
<td>Wooldridge 1.3, B1, C1</td>
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<td>Descriptive Statistics and Probability Functions</td>
<td>B1, B3, C4</td>
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<td>Simple Linear Regression (units, logs, RTO)</td>
<td>2.1- 2.6</td>
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<td>Multivariate Regression</td>
<td>3.1 - 3.3</td>
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<tr>
<td>Estimation</td>
<td>C1, C2, C3, C4</td>
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<td>Hypothesis Testing</td>
<td>4.1 – 4.3</td>
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<td>Binary Variables</td>
<td>7.1 – 7.7</td>
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<tr>
<td>Causality, Endogeneity, Unobserved Variables</td>
<td>9</td>
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<tr>
<td>Spurious Correlation and Reverse Causation</td>
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<td>Measurement Error, Heteroskedasticity</td>
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<tr>
<td>Single Diff/ Diff-in-Diff</td>
<td>13.2 – 13.4</td>
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<tr>
<td>Fixed Effects</td>
<td>14.1</td>
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<tr>
<td>Instrumental Variables</td>
<td>15.1</td>
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<tr>
<td>Regression Discontinuity</td>
<td>Supplemental</td>
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**Canvas**
Announcements, lecture slides and recordings, and assignments will be available through Canvas. The slides will be available for download before each lecture. I will also provide a link to a recording of the lecture whenever possible (under Module Tab). You are expected to join the lecture real-time. Classroom activities are only available for students joining the lecture and will not be accepted afterwards.

**Zoom**
**LECTURES**
Our lectures will be delivered via Zoom. The rules for the lecture are:
- As with an in-class lecture, plan to join on time and be attentive.
- Make sure your microphone is muted.
- When joining the lecture, make sure to sign in and register for the meeting using your full first and last name (as listed in the course roster).
- You can ask questions by “raising your hand” or typing them into the Zoom chat. If I haven’t addressed your question using these channels, you can unmute your mic and ask it directly.

You can find additional resources on remote learning here: KeepLearning.ucsc.edu

**OFFICE HOURS**
Office hours will also be via Zoom. I (and the TAs) will connect during the scheduled office hours and you can call in at any point during these times. Be aware that if you connect minutes before the end of office hours, we may not be able to fully address your questions. When you connect, please initially turn your mic off as other students might have already joined. Unless a student specifically requests a private meeting, anyone can join office hours and listen in. If you want a private meeting with me or a TA, please email me or the TA in advance. If you connect during a time when a different student has requested a private meeting, you will be placed in a Zoom “waiting room.” I will let you join once the private meeting is over and will text if it is expected to be long (more than 15 minutes).

**Course Evaluation**
Students’ input is very important for courses’ development and improvement. This feedback is taken into account when making decisions about course work. Professors and TAs do not have access to individual student surveys, and reports are only provided to instructors after grades are submitted. Students will be able to fill out the Student Experience of Teaching Surveys (SETS) in class during the last week of the quarter.