

Econ 113 Introduction to Econometrics Summer 2022 (10 Week Session)

Instructor: Harrison Shieh

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Office Hours: Tuesdays/Thursdays, 11AM – 12PM

Course Dates: 6/20 – 8/26

Course Meeting Days & Times: Tuesday/Thursdays, 9AM – 10:35AM

Teaching Assistants: Giancarlo Barcia and Ken Suzuki

Lecture and Section Zoom Links: See Canvas.

Course Description: Practical 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 hands-on computer experience with an econometric software package. Students cannot receive credit for this course and Applied Mathematics and Statistics 113.

Prerequisite(s): ECON 1 and ECON 2; STAT 7 and STAT 7L; and one of the following: ECON 11B, AM 11B, MATH 22, or MATH 23A. ECON 100A or ECON 100B strongly recommended as preparation.

Credit Hours: 5

Lecture Attendance: Not mandatory, but **strongly** suggested. Any extra credit opportunities that may arise would be during lecture. **If lecture attendance declines, then I may impose an attendance requirement.** When attending lecture **cameras must be on.** If you are unable to have your camera on during lectures, you must submit a form to opt-out of this mandatory requirement following these steps:

1. Send an email to su22.econ113@gmail.com from your UCSC email address at least 12 hours prior to the lecture you want to opt out from.
2. Shortly after you send this email, you will receive a response email with a unique link to a form.
3. Complete the form with your information and the reason to have your camera off.

Opting out of the camera on policy is only possible for lectures. During exams, your camera must be on for the duration of the exam. You must submit a form for each lecture where your camera will be off.

Section Attendance: You must attend at least **ONE** section a week. TA's will track attendance. Section information will be posted on Canvas.

Text(s): Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach*. I will primarily be referring to the 6th edition, but any version is okay, although you may need adjust the pages accordingly.

Note: This syllabus is subject to change. If there are any changes, I will notify the class via Canvas within a reasonable time frame.

Software: I will primarily teach the course in *Stata*, although I will also accept assignments completed in R (however, the TAs will cover Stata, so your support may be limited). If using Stata, Stata IC is sufficient. Please purchase Stata IC as soon as possible here: <https://www.stata.com/order/new/edu/profplus/student-pricing/>. You only need the 6/month plan (This costs \$48). You can split this license (up to three computers, I believe). If you are using R, please download RStudio. Any other languages will have limited support (Python, SPSS, Eviews, Matlab, etc.). Exams **will not directly cover programming**. That is, you will not be asked to “live code” during an exam.

Percent and Letter Grade Distribution (Subject to Change):

≥ 93	A+	73-76.99	C
90-92.99	A-	70-72.99	C-
87-89.99	B+	67-69.99	D+
83-86.99	B	63-66.99	D
80-82.99	B-	60-62.99	D-
77-79.99	C+	≤ 59.99	F

At the end of the quarter, I will add 0.5% to your course grade and then use the above grade distribution to determine your final grade. **DO NOT email me about rounding.**

Assignment Grade Distribution: There are 4 categories of assignments for this course:

- **Section Attendance (5%):** You must **attend at least one section a week**. Sections will review the concepts and do a lot of the heavy lifting on teaching the programming. TAs may also cover one or two problems from the problem sets.
- **Problem Sets (15%):** There will be 4 problem sets on Canvas. These problem sets will include both a programming and theory element. You will have a maximum two attempts per assignment, with the highest score being your final score. **No problem sets will be dropped.**
- **Weekly Quizzes (20%):** There will be a weekly quiz due every **Friday night (at 11:59pm)** that covers the preceding week’s material. **I will drop the lowest 2 quizzes.**
- **Midterms (30%):** There will be **2 midterm exams**. The exam will be administered via Canvas and Zoom during normal lecture hours. **Midterm 1 is scheduled for 7/19 and Midterm 2 is scheduled for 8/9. These are subject to change.**
- **Final (30%):** The final is cumulative and is **scheduled for the last day of class, 8/25**. The exam will be administered via Canvas and Zoom during normal lecture hours – you will have the entire lecture time to complete it.

Midterm Grade Replacement Policy: You are allowed to replace one of your midterm scores with the final exam. Once you commit to the midterm swap, whatever you score on the final *will be used in lieu of your requested midterm score, higher or lower*. For example, if you score a 55% on midterm 1, committed to a grade swap prior to the final, and then scored a 60% on the final, **the midterm will be scored as 60%**. The opposite is also true – if you score lower on the final, the lower score will be used.

- You must sign up before the posted deadline. Signing up is a commitment – you cannot renege after you have started the final.
- You **must** sign up for this policy **before** your final. A sign-up sheet will be provided on Canvas.
- **This policy is automatically in effect if you miss a midterm for whatever reason, but cannot be used for both. If you plan on missing both midterms, I would suggest taking the course at a different time.**
- You cannot use a midterm to replace a missed final. The final is mandatory.
- If there is a curve on the final, your raw score on the final will be used for the midterm. If there is a curve on the midterm, it will apply to the raw score. For example, if there was a 7% curve on the midterm and the raw score on the final was a 73%, then your midterm score will be an 80%. Essentially, the final's curve will not apply to the replaced midterm score, but the midterm curve will be applied to the swapped grade.

Student Learning Objectives: At the completion of this course, students will be able to:

1. Learn about hypothesis testing and its applications.
2. Learn about linear regression models and how to apply the model to a wide range of applications in economics.
3. Interpret linear regression model coefficients.
4. Use a statistical package to estimate linear regression models.

Course Policies:

1. Lecture Policy

- This is a synchronous course – lectures will be delivered live through Zoom
- Please be aware of your netiquette – treat your classmates and the teaching staff with respect. Comments in the chat box should be professional and appropriate for the setting.
- Anyone violating the basic standards of netiquette will be booted off the lecture.

2. Grading Policy

- Although the above scale is posted here, depending on the class performance, I may either curve or shift the distribution (under my discretion)
- Grades are final unless a documented mistake has been made. If you believe there to be a grading error, please schedule an appointment and we will discuss it.
- **Do not ask me about extra credit.**
- All grades will have an automatic 0.5% bump at the end of the course – this handles all concerns about rounding.

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- If you believe there to be a mistake, you have **3 days after assignment grades are posted to appeal the grade.**
3. **Make Up Policy**
- No late work is accepted.
 - If you miss a midterm, you can use the midterm replacement policy outlined above. Otherwise, no make-up midterms will be administered.
 - If you miss a problem set due date due to a **legitimate and verifiable excuse**, at my discretion, I will offer an alternative assignment or grading scheme. You **must** contact me within a week of the due date.
4. **Academic Honesty Policy (Read this carefully)**
- I encourage you to collaborate and work with your classmates. However, the work you submit must be your own.
 - I take academic honesty extremely seriously. Your classmates work hard to earn the grades they receive, so do not breach their (or my) trust by committing academic fraud. My policy on this is very simple – any instances of cheating, which include, but is not limited to, using Chegg and other “homework helper” sites, Reddit, payment of third-party services/individuals to complete assignments/exams, plagiarizing codes, or solutions, etc. will be treated as academic misconduct and will be dealt with accordingly. **You potentially will be subject to not only in-class sanctions (0 on the assignment in question, etc.) but may also face disciplinary action from your college provost.**
 - Facilitation of academic misconduct (failure to report instances of observed cheating, coordinating/conspiring with classmates to cheat over communications platforms such as WeChat, WhatsApp, Discord, Slack, FB Messenger, iMessage, LINE, Snapchat, Instagram DMs, etc.) will be treated as and is considered academic misconduct.
 - Posting of any copyrighted material (in this case, any course material) without my direct approval will also constitute an academic integrity violation. Quizzes, problem sets, exams, and even lecture slides are my intellectual property and copyrighted material. Violators may also be subject to disciplinary sanctions.
 - For more, please see: <https://ue.ucsc.edu/academic-misconduct.html>
5. **Accessing Canvas and Tech Support**
- Go to <https://canvas.ucsc.edu/>
 - Login using your normal UCSC credentials.
 - If there are issues, contact me first.
 - **You will need either a Windows PC or a Mac PC to complete the course requirements as well as a modern web browser (Chrome or Firefox).**
 - **Do NOT use Safari or any mobile browser, equations and graphs do not show up properly in them.**

- Any issues stemming from using the app version of Canvas, a non-approved browser, or the mobile version of Canvas will not be met with any sympathy. There is no recourse in these situations.

6. Regular and Effective Contact

- I will be available to you in a few different ways. Outside of lectures, the primary method of contact will be through Canvas announcements. I will also be available during scheduled office hours (and by appointment).
- I will try to answer emails at least once a day, during normal working hours. After hours responses will depend, but generally I will be available. There may be some delay during weekends, but generally expect a response within 1 – 2 business days. If I do not respond within that time frame, send a follow-up.

7. General Policies

- You will need a calculator. A phone calculator is acceptable.
- Generally, for problem sets and exams, additional time requests will not be honored, unless there is a valid request made through Disability Services and Accommodations office

8. Title IX and CARE

- UC Santa Cruz is committed to providing a safe learning environment that is free of all forms of gender discrimination and sexual harassment, which are explicitly prohibited under Title IX. If you have experienced any form of sexual harassment, sexual assault, domestic violence, dating violence, or stalking, know that you are not alone. The Title IX Office, the Campus Advocacy, Resources & Education (CARE) office, and Counseling & Psychological Services (CAPS) are all resources that you can rely on for support.
- Please be aware that if you tell me about a situation involving Title IX misconduct, I am required to share this information with the Title IX Coordinator. This reporting responsibility also applies to course TAs and tutors (as well to all UCSC employees who are not designated as “confidential” employees, which is a special designation granted to counselors and CARE advocates). Although I have to make that notification, you will control how your case will be handled, including whether or not you wish to pursue a formal complaint. The goal is to make sure that you are aware of the range of options available to you and that you have access to the resources you need.
- Confidential resources are available through CARE. Confidentiality means CARE advocates will not share any information with Title IX, the police, parents, or anyone else without explicit permission. CARE advocates are trained to support you in understanding your rights and options, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more. You can contact CARE at (831) 502-2273 or care@ucsc.edu.
- In addition to CARE, these resources are available to you:
- If you need help figuring out what resources you or someone else might need, visit the Sexual Violence Prevention & Response (SAFE) website, which provides information and resources for different situations.

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- Counseling & Psychological Services (CAPS) can provide confidential counseling support. Call them at (831) 459-2628.
- You can also report gender discrimination and sexual harassment and violence directly to the University's Title IX Office, by calling (831) 459-2462 or by using their online reporting tool.
- Reports to law enforcement can be made to the UC Police Department, (831) 459-2231 ext. 1.
- For emergencies, call 911.

9. Disability Services and Accommodations

- If any students need disability support or specific accommodations, please feel free to contact me and we can arrange accommodations. Please also contact the DRC team for more assistance, since I will need an accommodations authorization letter from the DRC Office. You can reach them at: 831-459-2089 or drc@ucsc.edu

Tentative Course Outline (Subject to change; this schedule is a projection):

Week	Date	Content	Comments/Notes	Textbook
1	Tuesday 6/21	Introduction to Econometrics Data and Sampling	Stata Introduction video to be posted. TAs will cover Stata basics during Week 1 Sections.	
	Thursday 6/23	Probability: Distributions Probability: Sample vs Population		
2	Tuesday 6/28	Probability: Moments Statistics: Estimation		
	Thursday 6/30	Statistics: Sampling Distributions + LLN + CLT Statistics: Joint and Conditional PDFs	Assignment 1 Due Saturday 7/2 at 11:59pm	
3	Tuesday 7/5	Simple Linear Regression: Theory and Derivation		
	Thursday 7/7	Simple Linear Regression: Theory and Derivation Simple Linear Regression: Interpretation of Coefficients		
4	Tuesday 7/12	Simple Linear Regression: Inference (Hypothesis Tests)		
	Thursday 7/14	Simple Linear Regression: Inference (Confidence Intervals)	Assignment 2 Due Saturday 7/23 at 11:59pm	
5	Tuesday 7/19	Midterm 1 (Covers Everything from Week 1 through Week 4)		
	Thursday 7/21	Simple Linear Regression: Units of Measurement (Scaling, Rates, Dummies)		
6	Tuesday 7/26	Simple Linear Regression: Logs and RTO Multivariate Regression (MVR): Estimation and Specification		
	Thursday 7/28	MVR: Estimation and Specification MVR: Inference and Omitted Variable Bias		
7	Tuesday 8/2	MVR: Inference and Omitted Variable Bias MVR: Functional Form (Polynomial Fits, Dummy Variables, Collinearity)		
	Thursday 8/4	MVR: Functional Form (Polynomial Fits, Dummy Variables, Collinearity)	Assignment 3 Due Saturday 8/6 at 11:59pm	
8	Tuesday 8/9	Midterm 2 (Covers Week 5 through Week 7)		
	Thursday 8/11	Intro to Causality: Endogeneity, Causality, and the Rubin Causal Model		
9	Tuesday 8/16	Panel Methods: First Differences, Diff-in-Diff, and Fixed Effects		
	Thursday 8/18	Panel Methods: First Differences, Diff-in-Diff, and Fixed Effects	Assignment 4 Due Saturday 8/20 at 11:59pm	
10	Tuesday 8/23	Final Exam Review		
	Thursday 8/25	Final Exam (Covers Everything!)		

Last Updated: 6/17/2022

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