Econ 103 & 103L: Introduction to Econometrics

2026 Summer Session C
UCLA Department of Economics

Instructor: Ryan Longmuir
Email: rlongmuir@g.ucla.edu (Please include "ECON 103" in the subject line.)
Office Hours: Wednesday & Friday, 11:30 am – 1:00 pm, Bunche 2265 (Alper Room)

Class Logistics

Lectures will be taught on Zoom. Recordings will be posted, assuming no technical issues.

Main Lecture	Tuesday & Thursday, 3:15 – 5:20 pm	Zoom Link
Lab Lecture	Tuesday, 1:00 – 2:15 pm	Zoom Link

Course Description

This course is an introduction to the theory and practice of linear regression analysis with an emphasis on its use in economic research. It will introduce the method of least squares, the Gauss-Markov theorem, and apply concepts from Econ 41, such as confidence intervals and hypothesis tests, in the univariate and multivariate regression context. The course emphasizes applications with real data by using computer software (R programming language) to implement the discussed methods. Students are expected to learn and master the basic quantitative tools and software covered in this course in preparation for other higher-division economic classes (e.g. Econ 104, 133) and for future empirical economic research.

This class is paired with a lab component. The labs consist of data analysis and coding examples to demonstrate the concepts learned in the lectures and how they are applied in real-world examples. You are required to enroll in **both** the lecture and the **corresponding** lab section.

Tentative Topics

- **Probability Review:** Single and multiple random variables, properties of the normal distribution, central limit theorem, confidence intervals
- **Univariate Regression:** Linear regression with one regressor, method of least squares, OLS assumptions, inference in linear regression, prediction, goodness of fit, confidence intervals, hypothesis testing, interpreting regression output tables from software

- **Multivariate Regression:** Linear regression with multiple regressors, testing joint hypotheses, model specification, multicollinearity, omitted variable bias
- **Additional Topics** (time permitting): Causality, treatment effects, heteroskedasticity

Prerequisites

According to the department guidelines, Econ 11 and Econ 41 are course requisites. This class will build heavily on Econ 41. No prior coding experience is required.

Textbook

Principles of Econometrics by Hill, Griffiths, and Lim, 5th Edition. This is the main text for the class. We will go through roughly the first 8 chapters. Lecture slides will also be provided. A PDF file is available and will be uploaded to the course site.

Campuswire

Please join the class Campuswire page: https://campuswire.com/p/GB7DD7B6B (Code: `6251`)

If you have any questions about the material outside of class, feel free to post them so that other students may learn from your question and so that the TAs can also help.

Homework

There will likely be 4 homework assignments, to be submitted online. The due dates will be the following Mondays at midnight. Late submissions will receive half credit, unless you have CAE accommodations or asked for an extension beforehand with a reasonable justification. It is strongly preferred that you submit your homework in one file. Moreover, it is recommended (but not required) that you write your homework in R. You may still handwrite and scan your homework answers, but each homework will have some coding questions required. Coding assignments must be submitted as a PDF file accompanied by the code written to generate that file.

Exams

Exams are multiple choice and **will be administered online**. Further details on the exam platform and procedures will be posted on the course site.

Midterm: August 20th
Final: September 10th

Policy on Missed Exams

Exams must be taken at one of the scheduled times. Department policy does not allow for any makeup exam to be administered if a student misses a midterm (see department common syllabus). If a student has a legitimate reason, related to a serious and reasonably unforeseeable event, and can provide acceptable documentation of such, then additional weight shall be placed on the final exam. Any such documentation, such as a doctor's note, should clearly state that the student was incapacitated and was therefore unable to take the exam or faced a serious impediment that prevented attendance. A student who misses an exam without a valid, verifiable excuse will receive a score of zero. If, due to a verifiable emergency, a student misses the final exam, then that student will be required to take a makeup exam administered by the instructor at a time to be arranged. If a student misses all exams, this student will receive an automatic grade of "F."

Evaluation

Your final letter grade will be based on the weighted average of the homework, midterm exam, and final exam. No other factor will be considered. There will be 2 different weighting options:

Component	Option 1	Option 2
Homework	20%	20%
Midterm	30%	40%
Final	50%	40%

Your final grade will be determined by whichever option gives you the highest grade.

Course Policies

Center for Accessible Education (CAE)

Students needing academic accommodation based on a disability must contact the CAE, which will oversee administering assessments. Any such arrangements with CAE must be communicated to the instructor during the first two weeks of classes. Please see the CAE website: https://www.cae.ucla.edu

ChatGPT / Other LLM Policy

You are free to use ChatGPT or other AI resources for your homework, but you should be careful when doing so. Always make sure you understand whatever answers it is giving you and verify whether they are correct. Exams are closed-book and closed-internet: you may not consult any outside resources (including AI tools, notes, or websites) while taking them.

Academic Honesty

While I encourage students to learn from each other and form study groups, I expect that all work and analysis submitted be original. It is imperative that students do the assignments on their own and do not copy and paste the work or code of their classmates. Any violations of academic honesty will be reported to the Office of the Dean of Students.

Statistical Software

We will be programming in R and RStudio. These are free software options. It is recommended that you install these programs before the first lab lecture. There is a module on the class page for how to install the relevant programs. If your computer is unable to install these programs, the computers on campus (e.g. in Powell) can use RStudio. The UCLA virtual desktop should also be able to use RStudio.

Other Resources

- **Bruin Shelter** — bruinshelter.org — A UCLA undergraduate volunteer organization that operates a shelter for students experiencing homelessness in the greater Los Angeles area.
- **CPO** — Basic Needs — The Community Programs Office on campus runs a food closet and computer lab, among other resources and basic needs, available for students.
- **CAPS** — counseling.ucla.edu — Provides mental health support for students, including counseling, emergency intervention, and psychotherapy.

Course Calendar

Week	Date	Day	Type	Topic / Deadlines / Notes
1	Aug 4	Tue	Lab + Lecture	
	Aug 6	Thu	Lecture	
2	Aug 11	Tue	Lab + Lecture	
	Aug 13	Thu	Lecture	
3	Aug 18	Tue	Lab + Lecture	
	Aug 20	**Thu**	**Midterm**	**Midterm Exam (online)**
4	Aug 25	Tue	Lab + Lecture	
	Aug 27	Thu	Lecture	
5	Sep 1	Tue	Lab + Lecture	
	Sep 3	Thu	Lecture	
6	Sep 8	Tue	Lab + Lecture	
	Sep 10	**Thu**	**Final**	**Final Exam (online)**