ECON 104 & 104L – Data Science for Economists

Summer A Quarter 2026

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Description: This course will cover heteroskedasticity, serial correlation, instrumental variables, binary choice models, and regularization methods among other topics. The course will emphasize hands-on experience on data analytics and will contain real data applications.

Lecture: Monday, Wednesdays 1 - 3:05pm
Lab Lecture: Wednesdays 4 - 4:50pm
(The course will be administered in an online, synchronous format, i.e. classes and labs will be live streamed at the times listed above and the recordings posted to the "Media Gallery" tab on the left side of the course's home page on Bruin Learn or in the "Zoom" tab under "Cloud Recordings".)
Office Hours: Mondays; 3:05 -4pm, Wednesdays 3:05 - 5pm (see Supplemental Information section for Zoom link)

Textbook: *Principles of Econometrics.* Hill, R. C., Griffiths, W. E., and G. C. Lim, 5th Edition, 2018. Wiley and Sons.

Principles of Econometrics with R. C. Colonescu, 2016.
https://bookdown.org/ccolonescu/RPoE4/

An Introduction to Statistical Learning with Applications in R. 2nd Edition, G. James et. al., 2017.
http://auapps.american.edu/alberto/www/analytics/ISLRLectures.html

Software: We will use R for the course. I recommend you install both R and RStudio (free version) for your computing platform. More details will be provided in our first lab lecture.

Computation of Course Grade: The course grade will be based on 3 projects, a multiple choice/answer midterm, and a cumulative final exam. At the end of the term, a curve may be applied to the overall grades. Since the curve depends on the overall class performance, I am not able to provide estimates for what grade you need on a particular exam in order to pass the class.

As a guideline, the historical distribution for core courses is 30% As, 35% Bs, 20% C+/C, 15% C-, Ds, Fs.

30% Projects (3 in total)

30% Midterm Exam (Wednesday, July 8, first hour of class, 20 MCQ; online; class held after)

40% Final Exam (Cumulative, July 29th, 40MCQ, class time, online)

Welcome Session: On the first class of the quarter, I will walk you through the syllabus, explain the assessments, grading, then we'll get into the topics outlined in the **Tentative Course Schedule** below. This and all subsequent classes will be live streamed and the recordings posted on Bruin Learn in the "Media Gallery" tab on the right of the Canvas homepage.

We will also be using the iClicker app for in-class quizzes/polls. Please find the link in the supplemental information section. We will be using the free version.

Lab Sections

You should attend the section for which you have signed up.

Email Policy : For course-related questions, you are strongly encouraged to attend your TA section, use the CampusWire or office hours. For personal matters, please ensure that you include "Econ 104" in the subject line of emails; I routinely delete suspicious emails without opening. If you don't get a response within 48 hours, please follow-up.

Where to Direct Questions:

Types of Questions	Contact
Administrative (course enrollment, advice)	ug-counselor@econ.ucla.edu
Administrative (switching sections, Canvas)	Ed McDevitt (mcdevitt@econ.ucla.edu)
Problem Sets + Course Material	Campuswire/Office Hour/TA
R /Python	Campuswire/Office Hour/TA
Writing	Writing Center (https://uwc.ucla.edu)

Academic Dishonesty: Any case of academic dishonesty will be reported to the Office of the Dean of Students. For more details please refer to the Office of the Dean of Students website at http://www.studentgroups.ucla.edu/dos/

Important: Assignment Enforced Policies

- Assignments must be typed in R Markdown and knitted to PDF. Once knitted, you will upload the knitted file to the course website following the link provided. Note, your 'Rmd' file will not count for credit.
- There are no make-up assignments. Late and/or emailed solutions for assignments will not be accepted. No exceptions will be made on this.
- All solutions must be submitted with the respective R code (you can make it visible in your Markdown document). Therefore, incomplete solutions (e.g., missing the respective R code), will not receive any credit.
- You are advised to start working on the assignments as early as possible in order to have enough time to troubleshoot any coding and/or knitting issue(s) you may encounter.
- For your projects, you will work in groups of 3-4 students, and therefore, only one submission per group is required. However, please make sure every group member's name is listed, and that you all have a copy of the file. To find your group, go to the "People" tab on the left side of the course page, then at the top, click the "Groups" tab and then search for your name to find your group. You may switch around these groups up until the end of Week 1. Thereafter, the only grace period you will have for switching is during Week 4, after the first project is submitted. You can reach out to your group members by posting an Announcement or Discussion post in your group (you can also reach out through Campuswire or GroupMe). Please do this before emailing me about unresponsive group members. If you would like to switch groups, you may do so, but groups are limited to 4 students. **Do not select the "+Group" option.** If you want to form a completely new group, look for a group that has 0 members and "Join"; they're usually at the end. If you would like to be in a group by yourself, join a group with zero people and email me to let me know you'd like to work alone.
- Note: There will be weekly homework assignments, but these do not need to be submitted since they do not count towards your grade. They are just for practice.

Course Enforced Policies

- There are no make-up exams and all exams are in person. Exam dates are indicated in the syllabus. Therefore, if you cannot take an exam on the specified date, you are advised to take the course in a different section.
- You need to bring a valid form of picture ID on scheduled days of exams. You will not be allowed to take the exam without one.
- The use of electronic devices such as cellphones, tablets, and devices that allow you to communicate with others, is strictly banned. You will be reported for cheating if caught using them during exams. Therefore, please turn off all your electronic devices during exams.
- There are no extra credit assignments available.
- Scientific/graphing calculators are allowed and recommended during exams.
- All grades are final when filed by the instructor on the Final Grade Report.

Disabled Students and the Center for Accessible Education (CAE): Any student with a pre-existing illness or condition who requests special arrangements must (a) qualify under CAE rules for such special arrangements and (b) must take the exam with CAE. Any such arrangements with CAE must be made the first week of classes. The instructor must be informed of any such arrangement in the first week of classes. For additional information and the qualification conditions of the Center for Accessible Education, please visit their website at http://www.cae.ucla.edu/. All other students must take the exam at the scheduled time under the same time constraints. It is the responsibility of all students who request special arrangements with CAE to be familiar with all of their rules as well as the rules of this class.

TENTATIVE COURSE SCHEDULE

Week	Topic	Chapter
1 (June 22)	103 Review + Heteroskedasticity	8
(June 24)	Heteroskedasticity (cont'd)	8
	Serial Correlation	9
2 (June 29)	Serial Correlation (cont'd)	9
	Project 1: Due July 3 by 11:59pm	
(July 1)	Instrumental Variables	10
3 (July 6)	Instrumental Variables (cont'd)	10
(July 8)	Simultaneous Equations	11
	Midterm Exam (July 8, first hour of class)	
4 (July 13)	Panel Data Models	15
(July 15)	Panel Data Models (cont'd)	15
	Project 2: Due July 17 by 11:59pm	
5 (July 20)	Qualitative and Limited Dependent Variable Models	16
(July 22)	Qualitative and Limited Dependent Variable Models	16
6 (July 27)	Regularization Methods (LASSO, Ridge, Elastic Nets)	6*
	Project 3: Due Jul 31 by 11:59pm	
	Final Exam (July 29, 1 – 3pm)	

*Chapter from G. James et al

SPECIAL DATES/HOLIDAYS

July 4	Independence Day
Jul 31	Teaching Ends