Econ140B: Introduction to Econometrics

Lecture: Monday and Wednesday, 11:00am-12:15pm, Arts 1349

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Discussion section: Tuesday, 5:00pm-5:50pm, ILP 4211, or 6:00pm-6:50am, ILP 4103 (no section on October 1)

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Office hours: Alice's office hours are posted on Canvas. No appointment is needed. Andreas' office hours are by appointment through the Calendly link on Canvas. We follow the UCSB *General Standards of Conduct,* available here.

Office hours are a chance for you to get help on homework and go over material covered in class. Alice is a UCSB PhD student who has mastered the material. I strongly encourage you to take advantage of this great resource.

Class web page: `ucsb.instructure.com`

Textbook: Jeffrey Wooldridge, *Introductory Econometrics: A Modern Approach,* 2nd or later edition, Cengage Learning. We will use this textbook extensively. Although I will refer to the 7th edition, any edition other than the 1st is okay. Access to the online resources for this book is not needed.

Course objective: Economic models are only useful if they can be tested with data. Economists have developed a large toolkit of statistical methods to test these models. The workhorse method is the linear regression model estimated by ordinary least squares (OLS). The bulk of the course will be spent outlining the properties of OLS and related estimators. In the second half of the semester, we will also discuss academic papers to see how these methods are applied by researchers and policy makers.

Most of the econometric methods introduced in class will be implemented in a modern statistical software package. Like many econometricians, I do my programming in R. You can download R for free at `r-project.org`. Alice will provide a brief introduction to R in the first discussion section. Feel free to talk to me or Alice if you have any questions. In addition, R has an extensive help system with a large community and typing in a question in Google solves any common problem.

Prerequisites: Econ140A. You are expected to know some simple calculus. Please read Appendices A and B in Wooldridge. They cover most of the concepts you should be familiar with, such as expected values, covariance, correlation, linear combinations of random variables, and tests of hypotheses.

Expectations: You are expected to attend class, to be prepared for class, to participate in classroom discussions, and to hand in assignments when due. You are expected to check Canvas for course updates. You are expected to know the contents of this syllabus. This course complies with the UCSB Campus Regulations & Student Conduct Code on academic integrity, graded assignments, and religious holidays. These policies are posted at

`https://regulations.sa.ucsb.edu`

Evaluations: Your final grade will be based on five problem sets (20% of the course grade), a midterm exam (35%), and a comprehensive final exam (45%). I will provide letter grades for the mid-term exam. These letter grades, however, are only there to provide informal feedback about your relative standing in class and play no direct role in the determination of the final course grade.

Problem sets: Five problem sets will be assigned during the semester. These problem sets are designed to gauge your understanding of the concepts discussed in class. The problem sets will have two types of questions: (1) You will be asked to prove a mathematical statement, calculate an estimate, or derive an equation. These questions are the type that will be asked on the exams. (2) You will be given a data set and asked to generate and interpret statistical output. You can use any statistical software package to answer these questions but I will only provide sample programs and support for R.

You are encouraged to work in groups of up to four people. You can turn in the answers as a group with the understanding that you worked on these problems together. It is not enough to split up the problems within the group. I will not accept late problem sets.

Examinations: There will be a midterm exam and a final exam. No make-up exams will be given except for medical excuses written by an independent medical professional on the day of the exam or a day before the exam. A member of your immediate family cannot excuse you even if they are a medical professional. The final exam date is set by UCSB. Exams will be a mix of problems like those from the problem sets, and discussion-type questions. Exams will be closed book and closed notes. All exams are in person.

Grading: The course grade is generally 'curved' in the sense that I significantly enlarge the A, A—, and B+ range relative to the usual A— > 90%, B— > 80%, C— > 70%, D > 60% rule. The objective is to ensure that a small mistake on an exam or a low grade on a problem set does not cost you your course grade. I do not 'curve' towards a distribution with a specific mean or median grade.

Course outline: Refer to the 'Syllabus' tab on Canvas.