

Course Syllabus

ECON 418 – Introduction to Econometrics

Summer Term 2021

Instructor: Austin J. Drukker

Time: Monday–Friday, 9:00am–10:45am, July 12–August 11, 2021

Location: McClelland Hall 132

Office Hours: By appointment

E-mail address: adrukker@email.arizona.edu

Course Objectives:

This course will introduce how econometric analysis can be used to answer economic questions. The topics covered include the theory of simple and multiple linear regression and estimation via ordinary least squares, as well as methods for dealing with heteroskedasticity and endogeneity.

Expected Learning Outcomes:

Students are expected to have learned how to understand, formulate, and estimate basic econometric models, and to articulate under what conditions ordinary least squares estimation may be biased and how to correct for it.

Prerequisites:

- ECON 339 or BNAD 276 // economic or business statistics
- ECON 300 or ECON 361 // intermediate microeconomics

Textbook:

Wooldridge, Jeffrey M. 2020. *Introductory Econometrics: A Modern Approach*, 7th ed. Boston: Cengage. ISBN: 978-1337558860

An electronic Inclusive Access version of the textbook is available on the course D2L page. Students must opt out of receiving the Inclusive Access version or else a fee will be charged to their Bursar account. The last day to opt out for students is July 15.

Technology Requirements:

Modern econometrics involves data analysis using computers. As such, this course requires that you have access to a computer that can run statistical software. The only required software for this course is R / RStudio, which is freely available on the Internet. Instructions for downloading R and RStudio are available at: <https://rstudio-education.github.io/hopr/starting.html>

Grading:

Students' grades will be determined by problem sets (40%), a midterm exam (30%), and a final exam (30%). Final grades will be determined by the following conversion: 90%+ = A, 80–89% = B, 70–79% = C, 60–69% = D, 59%– = F

Problem Sets:

Students will complete a total of 4 problem sets. Completion of the problem sets requires access to a computer and R / RStudio. Students may work together in groups of up to 2. Each assignment will be equally weighted in final grade calculations. Problem sets that are not submitted on time will receive a grade of 0.

Exams:

There will be two exams. Students will have the entire class period (1 hour and 45 minutes) to complete the exams. Exams must be taken during the allotted time. Failure to take the exams during the allotted time will result in a grade of 0.

Student Code of Academic Integrity:

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UArizona Code of Academic Integrity as described in the UArizona General Catalog. The penalty for cheating is a failing grade. See: <http://deanofstudents.arizona.edu/codeofacademicintegrity>

Accessibility and Accommodation:

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (DRC) to establish reasonable accommodations. Information about the DRC is found at the following:

website: drc.arizona.edu/students

email: drc-info@arizona.edu

Students must register and request that the DRC send the instructor official notification of their accommodation needs as soon as possible. It is the **responsibility of the student** to proactively **contact the instructor** to discuss accommodations. Any student who expects to need accommodations for the exams should contact the instructor **before** the first exam. The need for accommodations must be documented by the appropriate office.

COVID-19:

The Dean of Students Office is available to help students and their families manage crises, life traumas, and other barriers that impede success. If you are experiencing unexpected barriers to your success in this course related COVID-19, please contact the instructor and the Dean of Students Office (email: DOS-deanofstudents@email.arizona.edu).

Nondiscrimination and Anti-Harassment Policy:

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. The University encourages anyone who believes he or she has been the subject of discrimination to report the matter immediately. All members of the University community are responsible for participating in creating a campus environment free from all forms of prohibited discrimination and for cooperating with University officials who investigate allegations of policy violations.

Honors Contract:

Students who wish to earn honors credit for the course should contact the instructor for the requirements.

Subject to Change Statement:

Information contained in the course syllabus may be subject to change with advance notice, as deemed appropriate by the instructor.

Course Outline:

Week 1

Monday July 12: *What Is Econometrics?* (Chapter 1)
Tuesday July 13: *Math Refreshers* (Math Refreshers A and B)
Wednesday July 14: *Simple Linear Regression* (Chapter 2)
Thursday July 15: *Simple Linear Regression* (cont.)
Friday July 16: *Multiple Regression: Estimation* (Chapter 3)

Week 2

Monday July 19: *Multiple Regression: Estimation* (cont.) [Problem Set 1 due]
Tuesday July 20: *Multiple Regression: Inference* (Chapter 4)
Wednesday July 21: *Multiple Regression: Inference* (cont.)
Thursday July 22: *Multiple Regression: Asymptotics* (Chapter 5)
Friday July 23: *Multiple Regression: Functional Form* (Chapter 6-2)

Week 3

Monday July 26: *Multiple Regression: Binary Variables* (Chapter 7) [Problem Set 2 due]
Tuesday July 27: *Multiple Regression: Binary Variables* (cont.)
Wednesday July 28: Midterm Exam
Thursday July 29: *Heteroskedasticity* (Chapter 8)
Friday July 30: *Specification and Data Issues* (Chapter 9-4, 9-5)

Week 4

Monday August 2: *Endogeneity and Instrumental Variables* (Chapter 15) [Problem Set 3 due]
Tuesday August 3: *Endogeneity and Instrumental Variables* (cont.)
Wednesday August 4: *Regression Analysis with Time Series Data* (Chapter 10)
Thursday August 5: *Regression Analysis with Panel Data* (Chapter 13)
Friday August 6: *Regression Analysis with Panel Data* (cont.)

Week 5

Monday August 9: *Fixed Effects Estimation* (Chapter 14-1) [Problem Set 4 due]
Tuesday August 10: *Limited Dependent Variable Models* (Chapter 17)
Wednesday August 11: Final Exam