

Syllabus
ECON 300: Econometrics
Fall 2025

TTh 11:00 – 12:15 am
Behavioral Science Building 319

Instructor: Tyler Stoeger

Email: tstoeg2@uic.edu

Drop-In Hours: W 10:30 – 11:30am or by appointment

Office: University Hall 829

Teaching Assistant: Kevin Johnson

Email: kjohn245@uic.edu

Drop-In Hours: Th 12:30 – 1:30pm

Office: University Hall 721

I. Course Overview

Objectives

The objective of this course is to introduce you to the fundamentals of quantitative economic analysis and help you to develop foundational skills for evaluating and performing economic research. The primary focus of this class is to give you an understanding of how empirical work is conducted and provide examples of real-world applications. A secondary focus of this class is to teach you the basics of statistical programming in R. By the end of this class, you should be able to:

- Understand how regression analysis is performed and interpret regression results
- Understand the difference between correlation and causation
- Explain the uses of and assumptions underlying various research designs
- Demonstrate foundational R coding skills

Prerequisites

- ECON 120 or ECON 121
- ECON 270 or IDS 270 or STAT 101
- MATH 121

II. Resources

Textbooks

This course is designed to be self-contained within the lecture slides and other course material. That being said, there are a number of textbooks that go into further detail about some of the topics we will cover. These textbooks are recommended but not required.

- Angrist, Joshua D. and Jörn-Steffen Pischke. *Mastering Metrics: The Path from Cause to Effect*. 1st Edition. Princeton University Press, 2014. **(Recommended)**
- Bailey, Michael A. *Real Econometrics: The Right Tools to Answer Important Questions*. 2nd Edition. Oxford University Press, 2020.
- Woolridge, Jeffrey. *Introductory Econometrics: A Modern Approach*. 7th Edition. Cengage Learning, 2020.

The first text on this list is the primary book we will be using in this class. The other two are more traditional econometrics textbooks that can be used as supplemental material. All of the above books should be on hold in the UIC Library for short-term rental, as well as available in the Bookstore and online for purchase or to rent.

Course Website

Blackboard (uic.blackboard.com) will be used as the course website. All course content, including links to external websites, will be shared on the course page. Announcements will be posted on Blackboard with a corresponding email sent to your UIC email account. These announcements will contain important course information, including assignment due dates and notification about when a laptop will be required for lecture. Assignments will also be submitted through Blackboard.

It is very important to regularly check Blackboard and your UIC email for course updates. Please notify me immediately if you are unable to access Blackboard.

Software

While econometrics is a theoretical subject, the focus of this course will be on practical applications. As such, we will use statistical software and real data to learn and perform some basic analysis. **Instruction will be provided in R. No prior coding experience is required or expected, and a number of lectures and assignments will be dedicated towards teaching you the necessary coding skills.** While assignments will make extensive use of R, there will be no coding required on exams.

R is a free to use, open-source statistical programming language. Importantly for our purposes, it has built-in language support for many statistical procedures and a robust package system that supports a wide variety of econometric techniques and data visualization. R is normally used alongside its official IDE RStudio. You can download both R and RStudio at <https://posit.co/download/rstudio-desktop/>.

There will be a number of class periods dedicated to coding labs (see the course schedule below for tentative dates). You will be expected to have your laptop in class on those days so you can follow along with the instruction. **Lab participation is required, as you will be learning the necessary tools needed to complete your problems sets.** Announcements will be sent out ahead of lab days reminding you to bring your laptop.

Further R instruction will take place via the online learning platform [DataCamp](#). An email invite will be sent out with the link to join our classroom. Some DataCamp lessons will be required as part of your grade, while others will be available to complete for extra credit (see list below). **You will have free access to unlimited coding courses on DataCamp for six months.**

III. Evaluation

Grading Summary

Midterm Exam 1	15%
Midterm Exam 2	15%
Final Exam	20%
Problem Sets (PS)	15%
Required DataCamp (DC) Courses	15%
Class & Lab Participation	20%
Optional DataCamp (DC) Courses	Up to 8% extra credit

Grading Scale

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	<60%

Exams

There will be two midterm exams (10/7 and 11/4) and one cumulative final exam (date TBD).

Problem Sets

There will be 4 problem sets. Problem sets will contain a mixture of theoretical and practical questions, including questions to be answered using R. Problem sets should be turned in by 11:59 pm on the day they are due (see schedule below). Coding portions should be knitted into HTML documents and also turned in. Problem sets will be submitted via Box.

You are permitted to collaborate with other students on problem sets but must submit your own, unique assignment. Copying answers from someone else will result in a zero for the assignment and potentially disciplinary action per the UIC Code of Conduct.

DataCamp Courses

There will be 7 required DataCamp courses containing a mixture of instructional videos and hands-on exercises. These courses should be completed by 11:59 on the day they are due. **These will be graded based on completion.** That being said, the purpose of these assignments is to strengthen your coding capabilities, both for the purposes of this class and for your future careers. As such, I highly encourage you to take the necessary time you need to master the material.

In addition to the required courses, you can select up to 4 courses from the list below to complete for extra credit. Each completed course will grant 2 percentage points of extra credit, up to a maximum of 8% (see summary above). **To receive full credit, time spent and performance for each course will be assessed.**

Extra Credit List

- Cleaning Data in R
- Hypothesis Testing in R
- Introduction to Writing Functions in R
- Reporting with R Markdown
- Intermediate Data Visualization with ggplot2
- Writing Efficient R Code
- Generalized Linear Models in R
- Time Series Analysis in R
- Working with Dates and Times in R
- Visualizing Geospatial Data in R
- **Other courses can be completed with prior consent of the instructor**

There are a variety of other DataCamp courses available to you for free for six months. I highly encourage you to take advantage of these resources to develop your professional skills.

Class & Lab Participation

This course will use iClicker for in-class questions designed to check your understanding in real time and encourage active participation. You should be automatically enrolled in the iClicker classroom; if you are unable to access it, please contact me as soon as possible.

There will be a number of classes dedicated to programming labs, where I will walk the class through some programming topics in R. You are expected to follow along with me during these days and will need a laptop. To receive credit for attending the lab, you will need to submit your code file. Lab days will be announced well ahead of time, and announcements will be sent out reminding you to bring a laptop. These labs will be submitted via Box.

IV. Course Policies

This course has a zero-tolerance policy for any disrespectful and/or disruptive behaviors. Any such behaviors will result in immediate disciplinary action.

Grading Policy

Late Work

- You must email me *before* the deadline to request an extension if something prevents you from completing an assignment on time. In the case of an emergency, you may request an extension past the deadline but must inform me ASAP. These will be granted on a case-by-case basis.
- **Late work is accepted but a penalty will be applied:** -25% if within 24 hours post the deadline, and -50% thereafter.
- No assignment will be accepted after its answer key is posted. If you had a valid extension request, I will provide you an exemption and reweight your other assignments.

Regrade Requests

- **Any regrade request must first be discussed with your TA.** You may email the TA your concern or go to their office hours. If the TA is unsure about your request, they will reach out to me, and I will then get back directly to you.

Exam Make-up Policy

- Unless an unforeseeable emergency arises, **you must email me at least 24 hours before the exam to request to reschedule the test.** Requests will be evaluated and approved on a case-by-case basis. **You should not assume an approval until you receive a confirmation email.**

Email Policy

- All emails to the instructor or the TA must be sent from your UIC email account and the subject line should start with “ECON 300”, followed by a concise summary of why you are reaching out. This allows us to more easily determine the purpose of the email.
- We aim to respond to emails within 24 hours on weekdays, and on the next business day if an email is received on a weekend or holiday. If your email has not been responded to within that time allotment, please feel free to send a follow-up email.

Laptop Usage

- Programming Labs are designed for you to follow along and actively type code alongside the instructor. It is very important that you have a laptop with you in class on these days. To receive full credit for a lab, you will need to submit your code file to Blackboard by the end of the day, and this is best done if you are coding during the designed time.
- If you do not have a laptop, there are a number of ways you can rent a laptop from various services at UIC. **Please let me know if you do not have a laptop so we can figure out a solution that works best for you.**

Course Accommodation

Disability Resource Center (DRC)

- Students with disabilities are welcomed to request accommodations in completing the course. To request an accommodation, please reach out to the Disability Resources Center (DRC) at <https://drc.uic.edu>. The DRC will help you to identify how we can best assist you and provide you a formal Letter of Accommodations (LOC), which you can then send to me. If you already have a LOC, please send it to me at your earliest convenience.

Counseling

- The UIC Counseling Center provides diverse services to help students deal with stress, handle a crisis or trauma, cope with the transition to college, gain strength from gender and cultural identity, or manage serious mental illness and many other issues. See the website <https://counseling.uic.edu/> for more information.

Religious Observances

- If you wish to observe a religious holiday, please notify me by the tenth day of the semester of the date when you will be absent unless the religious holiday is observed on or before the tenth day of

the semester. In such cases, please notify me at least five days in advance of the date when you will be absent. I will make every reasonable effort to honor the request, not penalize you for missing the class, and if an examination or project is due during the absence, schedule a make-up exam for you.

Academic Integrity

- This course and its associated coursework are being administered under the policies of the University of Illinois at Chicago (UIC) Honor Code. All students are expected to respect and uphold this code. For a complete list of UIC's Academic Integrity standards, please reference section IV.A. of the [Student Disciplinary Policy](#).

Use of Generative AI

- Generative AI tools such as ChatGPT can be quite useful when programming, both for generating code and for troubleshooting. As such, **these tools are permitted ONLY for the purpose of writing code**. However, it should be noted that generative AI is prone to mistakes. Reliance solely on generative AI tools without understanding the fundamentals of R, completing the required DataCamp courses, or attending the in-class programming labs will likely result in errors, which will detract from your grade.
- **Use of generative AI on the other parts of your assignments, including questions that ask you to interpret the results of your code, is NOT permitted.** Use of AI on these portions of your assignments may result in a zero.

V. Tentative Schedule

Week	Date	Topic	Deadline
1	8/26	Syllabus & Introduction	
	8/28	Causality & The Potential Outcomes Framework	
	8/31		
2	9/2	Randomized Control Trials	
	9/4	Randomized Control Trials	
	9/7		DC: Intro to R
3	9/9	R Programming Lab 1	Lab 1
	9/11	Bivariate OLS	
	9/14		PS1
4	9/16	Bivariate OLS	
	9/18	Multivariate OLS	
	9/21		DC: Intermediate R
5	9/23	Multivariate OLS	
	9/25	R Programming Lab 2	Lab 2
	9/28		PS2
6	9/30	Hypothesis Testing	
	10/2	Hypothesis Testing	
	10/5		DC: Data Manipulation with dplyr
7	10/7	Midterm Exam 1	
	10/9	Dummy Variables	
	10/12		

8	10/14	Dummy Variables	
	10/16	Model Transformations & Specifications	
	10/19		DC: Intro to Statistics in R
9	10/21	Measurement Error & Bias	
	10/23	R Programming Lab 3	Lab 3
	10/26		DC: Introduction to Data Visualization with ggplot2
10	10/28	Fixed Effects	
	10/30	Fixed Effects	
	11/2		PS3
11	11/4	Midterm Exam 2	
	11/6	Differences-in-Differences	
	11/9		
12	11/11	Differences-in-Differences	
	11/13	Differences-in-Differences	
	11/16		DC: Introduction to Regression in R
13	11/18	Regression Discontinuity	
	11/20	Regression Discontinuity	
	11/23		DC: Intermediate Regression in R
14	11/25	No Class	
	11/27	Thanksgiving (No Class)	
	11/30		PS4
15	12/2	Regression Discontinuity	
	12/4	Final Review	
	12/7		
16	???	Final Exam	