

Economics 205 Econometrics

Dr. Gouri Suresh
Spring 2024

Meetings: Section A Lectures: MWF 9:30 am – 10:20 am in CHAM 1046
Section A Lab: R 9:40 am – 10:55 am in LIB B110
Section B Lectures: MWF 11:30 am – 12:20 pm in CHAM 1003
Section B Lab: R 12:15 pm – 1:30 pm in LIB B110
Office Hours: MWF: 10:30 am– 11:20 am, MR: 1:30 pm – 3:00 pm, and by appointment.
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Lab TAs: Huey Li and Kenzie Leonard
Embedded Tutors: Genna Barge and Katherine Herrema

Course Description

This course will introduce you to econometric modeling with an emphasis on applied econometrics. We will explore various elements of sound economic modeling, and you will learn to identify testable hypotheses, gain a facility with regression analysis as a tool of economic research, and improve your ability to understand and assess empirical papers in academic journals. This course includes a lab component which will allow you to become familiar with R, a software package widely used for statistical analysis. A significant component of this course revolves around an independent empirical research project that will require you to conduct your own econometric analysis and present your findings in the form of a research article.

Learning Objectives

By the end of this course, successful students will be able to:

- Explain the purpose, estimation methods, and results of regressions in peer-reviewed journal articles.
- Use economic reasoning and data to construct, estimate, and evaluate econometric models.
- Perform econometric analyses using R, a statistical software package.
- Compare different econometric tools and techniques to determine their applicability in different situations, especially for the purposes of *causal inference*.
- Apply the process of empirical economic research by conducting a semester-long individual project and communicating relevant findings in an applied econometrics research paper.

Statement on Inclusion

Your success in this class is important to me. Please let me know if there is anything I can do to help you better understand the materials in this course, and I will try to do it if I can. Having trouble with the concepts discussed in class? Come talk to me! Not sure about solving problem sets? Come talk to me!

The college welcomes requests for accommodations related to disability and will grant those that are determined to be reasonable and maintain the integrity of a program or curriculum. To make such a request or to begin a conversation about a possible request, please contact the Office of Academic Access and Disability Resources by emailing AADR@davidson.edu. It is best to submit accommodation requests within the drop/add period; however, requests can be made at any time in the semester. Please keep in mind that accommodations are not retroactive.

Textbooks and Software

- Stock, J.H., Watson, Mark W., 2017. Introduction to Econometrics, 3rd edition. ed. Pearson.
- Angrist, J.D., Pischke, J.-S., 2014. Mastering 'Metrics: The Path from Cause to Effect. Princeton. (Optional)
- Hanck, C, Arnold, M, Gerber, A, and Schmelzer, M, 2021. [Introduction to Econometrics with R](#). (Optional)
- R and R Studio are available on all college computers and can be freely downloaded on your own computers.

Grading

Laboratory Work (10% of the course grade)

You will attend the lab session for which you are registered. Typically, each session will involve the presentation of new material followed by a lab assignment. The Lab TA will grade your assignment based on the following scale.

- 0Absent or did not turn it in.
- 1Tried the assignment but made critical errors.
- 2Tried the assignment but only partly correctly.
- 3Completed the assignment mostly correctly.
- 4Completed the assignment fully correctly.

Homework Assignments (5% of the course grade)

Approximately once every two weeks, I will upload a short problem set consisting of questions similar to those you will find on reviews. Only one question, chosen at random, will be graded. The final score for each homework assignment will be whichever is higher between the score on that particular assignment and the weighted score from all in-class reviews. Homework solutions will be posted online the following week. **You may use the problem sets and their solutions only for your work in this class and you may not save them at the end of this semester or distribute them to anyone. Doing so would be a violation of the copyright restrictions and an honor code violation.**

Reading and Review Quizzes (15% of the course grade)

There will be several reading quizzes (a brief 5-minute quiz on the assigned reading for the day) and review quizzes (a brief 5-minute quiz on recently taught material) over the semester. These are not pop quizzes. I will announce each quiz at least 2 days in advance (i.e., on at least the prior class day). Reading quizzes will be closed book and closed notes. For review quizzes, you may refer to your printed-out or handwritten notes if you wish, but you may not refer to any electronic devices (so be sure to take any printouts if you feel you will need them). If you have an excused absence on a day with a quiz, please let me know so we can make an alternate arrangement. An unexcused absence on a day with a quiz will earn an automatic zero.

Two Reviews (30% of the course grade)

Each review will consist of three roughly equally weighted components: questions about a professional econometric analysis distributed in advance, questions similar to homework assignments, and questions based upon R analysis completed prior to the review. There will be a review session to help you prepare for each review.

Midterm (14% of course grade): **Mar 20 (Evening Review)**

Final (16% of course grade): **Self-scheduled during final exams**

Independent Project (40% of the course grade)

- 2 points Initial proposal: **Jan 31**
- 4 points Final proposal: **Feb 9**
- 9 points Model Development: **Mar 11**
- 15 points First Analysis: **Apr 3**
- 9 points Poster and Abstract: **Apr 15**
- 55 points Final Draft: **Apr 30**

Religious Observances and Course Flexibility

Please look carefully at the syllabus during the first week of class. If any of the assignments conflict with a major religious holiday for your tradition or you need some flexibility for some other important reason, please let me know. I will make every effort to make the necessary accommodations.

Eco 205 Spring 2024 - Tentative Schedule

| Date | Day | Lecture | Lab | Project/Review |
|--------|-----------|--|---|--|
| 17-Jan | Wednesday | Discuss course organization and honor code | | |
| 18-Jan | Thursday | | Discuss Independent Project | |
| 19-Jan | Friday | SW 1, 2 and 3 | | |
| 22-Jan | Monday | SW 2 and 3 | | |
| 24-Jan | Wednesday | SW 2 and 3 | | |
| 25-Jan | Thursday | | Lab 1 - Introduction to R | |
| 26-Jan | Friday | SW 4 and 5 | | |
| 29-Jan | Monday | SW 4 and 5 | | |
| 31-Jan | Wednesday | SW 4 and 5 | | Initial Proposal Due |
| 01-Feb | Thursday | | Lab 2 - Introduction to Regression Analysis | |
| 02-Feb | Friday | SW 4 and 5 | | |
| 05-Feb | Monday | SW 4 and 5 | | |
| 07-Feb | Wednesday | | | |
| 08-Feb | Thursday | | Lab 3 - Introduction to Regression Analysis 2 | |
| 09-Feb | Friday | SW 6, 7, and 8 | | Final Proposal Due |
| 12-Feb | Monday | SW 6, 7, and 8 | | |
| 14-Feb | Wednesday | SW 6, 7, and 8 | | |
| 15-Feb | Thursday | | Lab 4 - Different Functional Forms | |
| 16-Feb | Friday | SW 6, 7, and 8 | | |
| 19-Feb | Monday | SW 6, 7, and 8 | | |
| 21-Feb | Wednesday | | | |
| 22-Feb | Thursday | | Lab 5 - Hypothesis Testing | |
| 23-Feb | Friday | SW 6, 7, and 8 | | |
| 26-Feb | Monday | SW 6, 7, and 8 | | |
| 28-Feb | Wednesday | SW 6, 7, and 8 | | |
| 29-Feb | Thursday | | Lab 6 - Ramsey RESET, VIFs, Outliers | |
| 01-Mar | Friday | SW 9 | | |
| 11-Mar | Monday | Discuss Professional Papers 1 | | Model Development Due |
| 13-Mar | Wednesday | Discuss Professional Papers 1 | | |
| 14-Mar | Thursday | | Lab 7 - Midterm | |
| 15-Mar | Friday | Discuss Professional Papers 1 | | |
| 18-Mar | Monday | SW 11 | | |
| 20-Mar | Wednesday | SW 11 | | |
| 21-Mar | Thursday | | Lab 8 - Dummy Dependent Variables (Logit) | |
| 22-Mar | Friday | SW 11 | | |
| 25-Mar | Monday | SW 10 | | |
| 27-Mar | Wednesday | SW 10 | | |
| 28-Mar | Thursday | | Lab 9 - Panel Data | |
| 29-Mar | Friday | SW 10 | | |
| 01-Apr | Monday | SW 12 | | |
| 03-Apr | Wednesday | SW 12 | | First Analysis Due |
| 04-Apr | Thursday | | Lab 10 - Instrumental Variables | |
| 05-Apr | Friday | SW 12 | | |
| 08-Apr | Monday | Project Help | | |
| 10-Apr | Wednesday | Project Help | | |
| 11-Apr | Thursday | | No Lab (work on projects) | |
| 12-Apr | Friday | Project Help | | |
| 15-Apr | Monday | SW 13 | | Poster & Abstract for Symposium Due |
| 17-Apr | Wednesday | SW 13 | | |
| 18-Apr | Thursday | | Lab 11 - Experiments and Quasi-Experiments | |
| 19-Apr | Friday | SW 13 | | |
| 22-Apr | Monday | Discuss Professional Papers 2 | | |
| 24-Apr | Wednesday | Discuss Professional Papers 2 | | |
| 25-Apr | Thursday | | No Lab (work on projects) | |
| 26-Apr | Friday | Discuss Professional Papers 2 | | |
| 29-Apr | Monday | Review for Final on 4/29 and 4/30 | | Paper Due (4/30) |
| 01-May | Wednesday | VMC Symposium | | |
| 02-May | Thursday | Reading Day | | |
| 03-May | Friday | Final (self-scheduled in exam period) | | |