ECON 515 - Econometric Analysis II
Winter - 2024

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Class Website: https://canvas.emich.edu/
Class: Wednesdays 6:30-9:10 p.m.
Office Hours: Mondays & Tuesdays 10 a.m. until 2:00 p.m.
(in person or on Zoom) and by appointment

"In crude terms, researchers should listen to the data but know when to tell the data to shut up!"
-Peter Kennedy

Description

The purpose of this course is to expose you to advanced econometric methods. The focus of the class is on five types of statistical models: classical and general linear regression models, binary discrete choice regression models, panel data regression models, regression models involving systems of equations, and time-series models. You will learn methods for estimating and testing hypotheses about the parameters of these models, as well as a basic understanding of model specification issues. The emphasis of this class is on the practical application of econometrics, and understanding the important relationship between economic theory and statistical models in empirical research involving economic phenomena.

Prerequisites: ECON 514, or equivalent

Textbook

Wooldridge, Jeffrey, Introduction to Econometrics: A Modern Approach, Cengage.

Supplemental Material

All the lecture notes will be posted on Canvas 24 hours before the start of class. A teaching guide for the R statistical package, and data sets that accompany the R teaching guide can be downloaded from Canvas. A good online resource for using R is http://www.ats.ucla.edu/stat/sas/. Canvas will also include other information including the syllabus, problem sets, answer keys, data sets, and handouts.

Other Good References:

Stock, J.H. and Watson, M.W. Introduction to Econometrics. Boston: Addison Wesley.

Kennedy, P. A. Guide to Econometrics. MIT press.

R Statistical Software

In this course we will use the statistical software package R. R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. For instructions on how to install R and use R consult the R self-help guide posted on Canvas. Be sure to install R and R Studio on your personal computer before the first day of class. R (and R Studio) is installed on all the computers in the computer lab located in room 717 of Pray-Harrold. A teaching guide for the R statistical package, and data sets that accompany the R teaching guide can be downloaded from Canvas. A good online resource for using R is https://stats.idre.ucla.edu/r/.

Grading

Your grade will be based on a midterm exam (30%), final exam (30%), problem sets (10%), and a empirical research paper (30%). The grading scale for the course is as follows:

A...........93-100%   B+..........86-89%   C+..........76-79%   F............0-69%
A-..........90-92%   B...........83-85%   C...........73-75%
                         B-..........80-82%   C-..........70-72%

Exams

There will one midterm exam and one final exam. The final exam is not comprehensive and will cover the material succeeding the midterm. The exams will cover materials from lecture, textbook, and problem sets. Each exam will consists of an in-class and out-of-class component. The exams will include short and long answer questions, and require you to analyze data. Tentative dates for the exams will be given in class.

Problem Sets

There will be approximately one problem set assigned for each lecture. These will be posted on Canvas together with the data needed for the assignment. Problem sets usually consists of questions that require data analysis using R. R is installed on all the computers in the computer lab located in room 717 of Pray-Harrold. You can also download a copy of R on your personal computer. Note that you must turn in your own problem set (no copying!). Evidence that students copied assignments from other classmates will result in a zero for that assignment for all students involved. Answers to problem sets will be uploaded to Canvas after the due date. No late assignments will be accepted. Problem sets are graded on an all or nothing basis. This means that you must attempt EVERY question to receive credit, otherwise you receive a zero for the problem set.

Empirical Research Project

The empirical research project is an empirical study that uses data to analyze one or more economic relationships related to a topic of your choice. The objective of the study is to explain the economic relationship(s) between two or more economic variables. The paper should include five sections: (1) Introduction; (2) Data and descriptive statistics; (3) Econometric model; (4) Results; and (5) Conclusion. The paper has no required length and will be graded on quality not quantity. You are required to submit a one page proposal, which includes your research question, research hypothesis, the econometric model, and the data source(s). The final product will include the paper and the R script file at the end of the semester. Details of this research paper are on Canvas.

Classroom Conduct

Any successful learning experience requires mutual respect. Neither instructor nor student should be subject to behavior that is rude, disruptive, intimidating, or demeaning. Views may differ on what counts as rudeness or courtesy. If you are not sure what constitutes good conduct in this classroom, ask the instructor. The instructor has primary responsibility for and control over classroom behavior and maintenance of academic integrity.

Students are expected to adhere to the standards and expectations detailed in the Student Code of Conduct. Academic dishonesty will not be tolerated. If you are caught cheating I will give you a zero for that assignment/exam and if the problem persists I will take further action.

University Policies

In addition to the articulated course specific policies and expectations, students are responsible for understanding all applicable University guidelines, policies, and procedures. For resources related to staying healthy Click Here. The EMU Student Handbook is the primary resource provided to students to ensure that they have access to all University policies, support resources, and students' rights and responsibilities. Changes may be made to the EMU Student Handbook whenever necessary, and shall be effective immediately, and/or as of the date on which a policy is formally adopted, and/or on the date specified in the amendment. Please note: Electing not to access the link provided below does not absolve a student of responsibility.

For questions about any university policy, procedure, practice, or resource, please contact the Office of the Ombuds: 248 Student Center, (734) 487-0074, emu_ombuds@emich.edu, or visit the website: http://www.emich.edu/ombuds

University course policies link: http://www.emich.edu/studenthandbook/policies/academic.phpuniv

Disability Concerns

It is my goal that this class be an accessible and welcoming experience for all students, including those with disabilities that may affect their learning in this class. If you believe you may have trouble participating or effectively demonstrating learning in this course, please meet with me (with or without an accommodation letter from the Disability Resource Center) to discuss reasonable options or adjustments. During our discussion, I may suggest the possibility/necessity of your contacting the DRC (240 Student Center; (734) 487-2470; swd_office@emich.edu) to talk about academic accommodations. You are welcome to talk to me at any point in the semester about such issues, but it is best if we can talk at least one week prior to the need for any modifications.

University Writing Center

The University Writing Center Virtual (UWCV) offers writing support to all undergraduate and graduate students. In doing so, we value the diversity of our campus and honor all students and the languages they bring with them to the university.

University Library

Research support is available to all students, 24/7. This includes getting started with research, identifying sources to search, developing search strategies, evaluating resources, and more. See https://www.emich.edu/library/help/ask.php for all of the ways in which you can get help with research. Some University Library services have changed, and may continue to change, in response to the pandemic.

Please check for current information at https://www.emich.edu/library/news/covid.php.

The Academic Projects Center (116 Halle Library) also offers one-to-one writing consulting for students, in addition to consulting on research and technology-related issues. Additional information about the APC can be found at https://www.emich.edu/apc.

International Student Resource Center

International Student Resource Center (200 Alexander Building) is a service of the World Languages Department for EMU students who need help with their non-native English language for academic assignments. Help is provided for reading and comprehension, listening and note-taking, improvement of grammatical accuracy, compositions, study skills, and conversation. Note, this is not the Office of International Students.

Student and Exchange Visitor Statement (SEVIS)

The Student Exchange Visitor Information System (SEVIS) requires F and J students to report numerous items to the Office of International Students & Scholars (OISS))

Sexual Misconduct Prevention Response Office (formerly Title IX Office)

Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex under any education program or activity receiving federal financial aid. Sexual assault and sexual harassment is a form of sex discrimination prohibited by Title IX. What you need to know about Title IX.

Tentative Topics to be Covered

1. Introduction to Econometrics (Chapter 1)

2. Review Probability and Mathematical Statistics (Appendix B and C)

3. Review of Linear Regression Analysis (Chapter 2-4)

4. Heteroskedasticity (Chapter 8)

5. Other Specification and Data Issues (Chapter 9)

6. Basic Regression Analysis with Time Series Data (Chapter 10)

   Midterm Exam

7. Pooling Cross Sections Across Time: Simple Panel Data Methods (Chapter 13)

8. Advanced Panel Data Methods (Chapter 14)

9. Instrumental Variables Estimation and Two Stage Least Squares (Chapter 15)

10. Simultaneous Equations Models (Chapter 16)

11. Limited Dependent Variable Models (Chapter 17)

12. Regression Discontinuity Design

   Final Exam

*This syllabus is subject to change. If I do make changes, I will announce them in class and email them.