ECON 483: Econometric Applications

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OH: MW 10:30-12 Savery 319H

Course Materials

• Website: https://catalyst.uw.edu/workspace/clarkl/39836/

• Introduction to Econometrics, Dougherty 4th Edition (Required)

• Applied Econometrics with R, Kleiber and Zeileis (Recommended)

• Introductory Econometrics, Woolridge (Another good resource)

Course Description

This course provides an introduction to econometric tools with an emphasis on applications. Naturally we will cover some of the theoretical framework underpinning econometrics but our focus will be on developing functional quantitative analysis skills. A critical component of this is working with real data and learning how to implement econometric models in a computing environment. To this end, we will be learning and working with the R programming language – a very popular (and free!) statistical computing language and writing an original research paper on a topic of your choosing. Prerequisites for the class are intermediate economic theory through ECON 301, differential calculus, and a basic statistics class (e.g. STAT 311, STAT 341, STAT 390, etc.)

Grading

• Problem sets (20%): There will be weekly problem sets. These problem sets will include a mix of econometric theory and applications using R.

• Midterm (15%): There will be an in-class written exam. The exam will be a mix of theory components and questions about practical implementation – how/when/why certain econometric models should be applied in particular situations.

• Final (20%): There will be a take-home final exam. The exam will cover some of the econometric models presented in the latter half of the class but the overwhelming emphasis will be on applications. The exam will be open book and open notes, however you will not be allowed to discuss problems with classmates. Computer code will be cross checked not just for variable names etc. but also overall syntax and structure.
• Research Paper (45%): The culmination of the class will be an economic research paper on a topic of your choosing. You will formulate an economic question you wish to investigate, find data, and perform original analysis of the problem. The paper will be 10 - 15 pages long, exclusive of any tables, graphs, or other visualization tools. The total contribution of this paper to your final grade will be broken down into several component parts. See below for more details. Your paper should also be clear and well written. If English is not your native language and you find writing particularly challenging, the Economics Department has writing assistance available through the English Language Learner Tutoring Center. The tutoring schedule can be found at http://econ.washington.edu/undergrad/resources/english-tutor-schedule/

Research Paper

Writing a quantitative research paper is a challenging task. To make the task more manageable, we will break up the research process into separate pieces that will be completed throughout the quarter. This approach will help you manage your time well throughout the quarter as well as learn important steps in applying econometric tools to an unstructured problem.

• Proposal (10%): Your proposal will outline a well-formed idea or phenomenon that you would like to investigate further. This should be a topic from some area of economics that you find particularly interesting and should include a brief summary of existing economic literature about your topic. Keep in mind that most economic journal articles are quite sophisticated but you can usually understand the takeaway from the introduction and the conclusion. You will need to carefully limit the scope of your topic such that you can reasonably carry out analysis during the quarter, i.e. “monetary policy” is not specific enough. Despite this stage seeming fairly simple and straightforward, a fair amount of work should go into it. From this stage, a clear path forward to your final paper should be fairly easy to see. An important question to keep in mind at this stage is whether or not data is available to conduct your analysis. You do not need to download and begin working with data for your proposal but you should have an idea about the type of data you will use and where you will find it.

• Data Summary (5%): Your data summary should detail what data you will be using for your analysis. You should be very clear about the source of your data, including how it was obtained or collected. You will also include “summary statistics” for your data – basic statistics of interest that give a very broad overview of what the data looks like – including means, standard deviations, histograms, plots, or any other summarization tools that will help you get a broad perspective on the information with which you will be working.

• Econometric Framework (5%): Your framework should outline what the methodological approach to your analysis will be. You should describe what econometric models you will be using as well as any concerns you might have about model specification, endogeneity, etc. If your data needs cleaning you should lay out how you will approach cleaning and preparing the data for analysis.

• Paper (25%): The last step is the research paper itself. As mentioned above, the paper should be 10-15 pages in length, not including tables, graphs, or any other visualization tools.
Your paper should be well written, clear and easy to understand, and include the following items:

– An introduction, including a statement of your topic, why it is interesting, and a brief literature review.
– Your methodology, including how you intended to investigate the problem and any potential problems or issues with your techniques
– A data summary, including summary statistics and a description or where the data came from, how you cleaned it, etc.
– A summary of your results, including parameter estimates, hypothesis tests, robustness checks etc.
– An interpretation of your results, detailing what your econometric analysis tells you about the problem you are analyzing.
– A conclusion summarizing your results and the main economic takeaway from your analysis