

Big Data in Economics and Public Policy - ECN 400T¹

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Course Overview: Why are we here?

Large amounts of data are becoming increasingly important to our society and are being utilized to design and implement policies to address some of the largest challenges our society faces from economic mobility to climate change. While economic theory can help us understand how to confront these challenges, if not also informed by quantitative analysis, we will not be able to distinguish between competing theories nor have knowledge as to the magnitude of the effects predicted by theory. Additionally, since economics is most often a science of observation and not experiments, it can be difficult to distinguish between correlation and causation when examining social and economic phenomena.

During the past two decades economics has experienced a “credibility revolution” in which access to large amounts of data have allowed economists and policy analysts to test theories and estimate effects of policy interventions through quasi-experimental techniques. This course will introduce students to frontier research and policy applications that use these techniques and to differentiate between associational results and causal results and apply data analysis techniques to inform policy debates.

Learning Objectives

In this course you will:

- Describe how economic theories relate to public policy problems
- Differentiate between correlation and causation when describing economic phenomena and analyzing public policies.
- Analyze large data sets using statistical software and describe the salient features of the data using statistical summaries and visualizations.

Course Resources

Readings: There is no textbook for this course. Instead, we will be using a lot of primary literature and journal articles to learn how research is done with large data sets. All readings will be posted to Schoology.

Course software: You will need to use a statistical program to complete assignments for this course. I recommend that you purchase a six-month license for STATA (approximately \$50) since

¹This is the preliminary version of the syllabus and may be changed during the term to accommodate changes in the course.

this is the software I am most familiar with and will be using in class. However, you are welcome to use other software packages you may be familiar with such as R. I will only be able to provide limited help with non-STATA software packages.

Assignments and Grading

Homework assignments and projects: Each topic we discuss in class will have an associated data/statistical analysis project. Each assignment is meant to teach you different skills that are particularly appropriate to that topics. Details on each assignment will be provided during class.

Class Participation: You are expected to attend all class meetings and come prepared having done the assigned reading before class. We will discuss each reading during class. Moreover, you should be prepared to discuss the readings/assignments in small groups.

Grading

Your course grade will be based on these components:

Homework assignments and projects	75%
Class Participation	25%

Attendance and Participation

You are expected to attend all class sessions periods and be prepared to discuss the videos and readings that have been assigned for that day. Class will be much more interesting and productive if everyone comes prepared. If you will be missing any classes, let me know as soon as you know you will be missing class. You will still be required to know the material from that class period.