Intro to Causal Analysis in Political Science

Course Description
The goal of this course is to teach students to conduct their own independent quantitative research, with a focus on understanding the causal implications of their analyses. By the end of the course, students should be comfortable conducting their own independent research using either observational or experimental data. Furthermore, the course will help students develop quantitative tests of research questions that they are considering asking in their MA theses.

There are an enormous number of different methods that could be covered in a course with these goals. Unfortunately, we can only focus on only a few of these. However, the course will develop students’ ability to learn more specific methods that they need to address their research question(s).

The primary text used in the course will be:


We may also use the replication datasets from the book’s website: http://www.mostlyharmlesseconometrics.com

In addition, there will be scholarly articles assigned as readings and/or replications throughout the course which students can find on NYU BobCat or Google scholar.

Throughout the course, we will discuss students' research questions and how they might address these questions quantitatively. As a requirement of the course, students must speak one-on-one with professor prior to the midpoint of the course to discuss possible research questions, and again between the midpoint and last week of the course when students need to submit their research proposals to the entire class. Depending on the project type (experimental or observational), the student may be required to provide some level of analysis in their proposal.

Week 1: The Experimental Ideal
In this section, students will learn the basic treated/control framework of causal analysis. Furthermore, students will learn to develop their own ideas in terms of a
causal relationship, and learn to identify the common pitfalls to a causal interpretation.

Readings:
- Chapters 1 and 2 of *Mostly Harmless Econometrics*

*Week 2: Cross-sectional OLS, Logistic and Ordered Logistic regression models*
In this section, students will learn to use software to conduct their own regression analyses. The focus will be on selecting variables, and recognizing the biases that limit a causal interpretation of findings.

Readings:
- Chapter 3 of *Mostly Harmless Econometrics*

*Week 3: Fixed Effects, Panel Data, Difference-in-Differences*
Students will learn what fixed-effects add to the analysis of observational data and when and how to include them in practice. Students will learn the basics of time-series analyses with a focus on where to find additional information on the subject. Lastly, Difference-in-Differences models will be explored as a possible research method that might be suitable for some student’s work.

Readings:
- Chapter 5 of *Mostly Harmless Econometrics*

*Week 4: Natural Experiments, Instrumental Variables and Regression*
Discontinuity
Students will learn the assumptions behind the use of instrumental variables, and how to conduct analyses using instrumental variables. Special attention will be paid to possible violations of assumptions in existing work in order to understand how to ensure students do not violate these assumptions.

Readings:
- Chapter 4 and 6 of Mostly Harmless Econometrics

Week 5: Survey Experiments and Field Experiments
This section will focus on the use of survey experiments as a straightforward method of causal analysis. The goal will be to use survey experiments as an example of an experimental method that students can pursue even on their MA theses. Field experiments will also be explored with a focus on evaluation studies.

Readings:

Week 6: Developing Student Research
During the last week, students will submit (to all students) their research proposal. We will discuss each student’s proposal, and students will be graded on both their own proposals and their constructive comments on other students’ proposals.

Readings:
Students responsible for reading other students submissions and having comments
Course Requirements and Grading
The course grade consists of class participation (25%), assignments (15%), an initial 3-page research proposal draft (20%), and a 10-page research proposal at the end of the course (40%).

Class Participation is required for this course. Students must come prepared to answer questions about the readings. Furthermore, students must read other student’s research proposals twice over the course of the class: once in the third week of class and once prior to the sixth week of class. Students will provide one-page of comments on every other student’s research proposal in the class. They also must be prepared to discuss each proposal in class.

Assignments will be given twice during the course. Students will be given sample data sets and asked to use statistical software to provide information about the data. In some weeks, the assignment data will be from an existing piece of research and students will be asked to replicate specific findings from the existing research. There may also be substantive questions about the methods used in each assignment.

A 3-page Research Proposal Draft must be turned in prior to the third week of class. The 3-page draft proposal which will be supplied to all other students in the course for feedback. The draft will provide the rationale behind the research question, one or more hypotheses, and information on where data could be collected to test the question.

A 10-page Research Proposal will be turned in prior to the last week of class. The proposal must include preliminary data collection where possible, reasons why the research question is important, why your proposed methodology adds to an existing or new debate, and sample statistics where possible. Students are not expected to answer their research question. The goal instead is to develop a research plan to answer the question in future work (possibly their MA Thesis).