Course Description and Objectives
The goal of this course is to provide students with an introduction to research methods. We begin by discussing the strengths and limitations of multiple regression analysis and the relationship between regression and causal modeling. We then develop a sequence of extensions and alternatives, including: randomized trials, regression discontinuity, matching methods, difference-in-differences and panel data, and instrumental variables. We will learn both the techniques and how to apply them using large-scale data sets from domestic and international policy settings. Skills students will acquire in this course include: the capacity to reason causally and empirically, the ability critically to assess empirical work, knowledge of advanced quantitative tools, and experience in working with large data sets.

Grading
The course will be evaluated through five problem sets (10% each), two pop quizzes (5% each), and one larger take-home assignment (25%). All problem sets will make use of Stata, so please ensure you are familiar with how to access this program at NYU.

Course Structure
The class includes lectures, readings, and independent computer lab work. You are strongly encouraged to relate the general material of the course to your specific research interests throughout the course. Class attendance is critical as interaction within the classroom is an essential aspect of this course and the learning process associated with it.
Expectations
Preparation before class: come prepared for each class having read the required material carefully. Given the nature of the material, you may find your first pass at a required article challenging; the first time through focus on the concepts and intuition (often found in the introduction).

Absenteeism, punctuality, and in-class conduct: You are expected to attend all classes, and arrive on time. Systematic tardiness, disruptive behavior (including side conversations, use of your cell phone, or using your computer for anything other than note taking) will negatively impact your grade. If you miss a class due to unavoidable circumstances, please contact another member of the class and ask him or her what was covered in class.

Schedule
3 September: Preliminaries and review
10 September: Introduction to causality
17 September: Randomized controlled trials: basics
25 September: Randomized controlled trials: advanced
1 October: Introduction to Stata and discussion of PS 1
8 October: Instrumental variables, a (re-)introduction, and problem set 1 due
15 October: Instrumental variables: advanced
22 October: Regression discontinuity, introduction
29 October: Regression discontinuity, advanced, and problem set 2 due
5 November: Matching, basics
12 November: Matching, advanced, and problem set 3 due
19 November: Difference-in-differences
26 November: No class - Thanksgiving
3 December: Take-home assignment and PS 5 discussion and problem set 4 due.
10 December: No class (Classes meet on a Monday schedule); problem set 5 and replication assignments due

Note: These due dates are tentative; they will be postponed if we have not covered the necessary material. Weekly office hours are 12.30 – 2.00 pm, by appointment, in 3004 Puck.

Readings
* denotes required, # denotes an advanced reading where you should only skim the non-technical portions.

Topic 1: Causality and the Treatment Effect


Topic 2: Introduction to Randomized

Cox, The Planning of Experiments, selected chapters (currently unavailable online; check the library if you are interested in this topic).

**Topic 3: Randomized Experiments, Advanced Issues**


**Topic 4: Instrumental Variables, A Re-Introduction**


**Topic 5: Instrumental Variables, Advanced Topics**

Imbens, Guido, and Jeffrey Wooldridge (2009), “Instrumental Variables with Treatment Effect Heterogeneity: Local Average Treatment Effects,” manuscript.

**Topic 6: Regression Discontinuity, Introduction**


**Topic 7: Regression Discontinuity, Advanced Topics**


**Topic 8: Matching, Introduction**

*Stuart, Elizabeth (2009), “Matching Methods for Causal Inference: A Review and a Look Forward,” manuscript, Department of Biostatistics, Johns Hopkins University


**Topic 9: Matching, Advanced Topics**


**Topic 10: Difference-in-Differences**