Quantitative Methods for Policy Analysis
MSPP-GP 2905.001
2:00 pm – 3:40 pm

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Office Hours
Wednesday 12.30 pm-1:30 pm
By appointment: https://goo.gl/xnUDVB

Course Description and Objectives
The goal of this course is to provide students with an introduction to key methods of quantitative policy analysis. We develop the statistical toolkit of regression analysis, reviewing the bivariate regression model and then continuing with multiple regression, and explore how these methods are applied to policy analysis in five benchmark techniques: randomized trials, direct regression analysis, instrumental variables, regression discontinuity, and difference in differences. We emphasize the distinction between regression as a statistical tool and the additional context knowledge (and occasionally assumptions) that are required to address causal policy questions.

Approach
The focus will be on learning to use the methods discussed. This involves a counterpoint between methods discussion and application. The methods discussion will lean on basic statistical concepts, but the emphasis will be on the intuition and ideas. The applications will be based on analysis of real and realistic policy-relevant data.

Grading
The course will be evaluated through five problem sets (15 points each), and a midterm exam (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 policy 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.
**Required Books**
James Stock and Mark Watson (SW below), *Introduction to Econometrics*, Pearson Addison Wesley.

Joshua Angrist and Jörn-Steffen Pischke (MM below), *Mastering ‘Metrics*, Princeton UP.

**Schedule**
- Class 1: Introduction to causality and review of the bivariate regression model
- Class 2: Randomized controlled trials: **Assigned**: PS1.
- Class 3: Multiple regression: estimation and interpretation
- Class 4: Multiple regression: hypothesis testing. **Due**: PS1.
- Class 5: Multiple regression: challenges **Assigned**: PS2.
- Class 6: Dummy variables
- Class 7: Direct regression analysis of policy: possibilities and perils. **Due**: PS2.
- Class 8: Midterm
- Class 9: Multiple regression: functional form
- Class 10: Instrumental variables. **Assigned**: PS3.
- Class 11: Regression Discontinuity. **Assigned**: PS4. **Due**: PS3.
- Class 12: Introduction to panel data. **Assigned**: PS4. **Due**: PS3.
- Class 14: Introduction to time series and forecasting

**Due Dec 18th**: PS5.
Readings
All required readings are on the web directory. Some optional readings are there as well.

Class 1: Causality and the Treatment Effect, Review of Bivariate Regressions

Required:
- MM, Introduction.
- SW, Chapters 1, 4, and 5

Optional:

Class 2: Randomized trials

Required:
- MM, Chapter 1.

Optional:
- Imbens, Guido, and Donald Rubin, Causal Inference for Statistics, Social and Biomedical Sciences. Cambridge.

Class 3: Multiple Regression: Estimation and Interpretation
Required:
- SW, Chapter 6

Class 4: Multiple Regression: Hypothesis Testing
Required:
- SW, Chapter 7.1-7.4

Class 5: Multiple Regression: Challenges
Required:
- SW, Chapters 5.4, 7.5-7.7, and 9.

Class 6: Binary Dependent Variables
Required:
- SW, Chapter 11.

Optional:

Class 7: Multivariate Regression and the Analysis of Policy
Required:
- MM, Chapters 2 and 6.
- SW, Chapter 9.

Optional:

Class 8: Midterm
Class 9: Multiple Regression and Functional Form

Required:
- SW, Chapter 8.

Class 10: Instrumental Variables

Required:
- MM, Chapter 3.
- SW, Chapter 12.

Optional:

Class 11: Regression Discontinuity

Required:
- MM, Chapter 4.
- SW, Chapter 13.4

Optional:

**Class 12: Introduction to Panel Data**

**Required:**
- SW, Chapter 10.

**Class 13: Difference-in-Differences**

**Required:**
- MM, Chapter 5.

**Optional:**

**Class 14: Introduction to Time Series and Forecasting**

**Required:**
- SW, Chapter 14.

**Academic Integrity**
Academic integrity is a vital component of Wagner and NYU. All students enrolled in this class are required to read and abide by Wagner’s Academic Code. All Wagner students have already read and signed the Wagner Academic Oath. Plagiarism of any form will not be tolerated and students in this class are expected to report violations to me. If any student in this class is unsure about what is expected of you and how to abide by the academic code, you should consult with me.

**Henry and Lucy Moses Center for Students with Disabilities at NYU**
Academic accommodations are available for students with disabilities. Please visit the Moses Center for Students with Disabilities (CSD) website and click the “Get Started.” You can also call or email CSD (212-998-4980 or mosescsd@nyu.edu) for information. Students who are requesting academic accommodations are strongly advised to reach out to the Moses Center as early as possible in the semester for assistance.

**NYU’s Calendar Policy on Religious Holidays**
NYU’s Calendar Policy on Religious Holidays states that members of any religious group may, without penalty, absent themselves from classes when required in compliance with their religious obligations. Please notify me in advance of religious holidays that might coincide with exams to schedule mutually acceptable alternatives.