Quantitative Methods for Policy Analysis
MSPP-GP 2905.001
Wednesday 2:00 pm – 3:40 pm
Location: Silver 403

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Office Hours
Wednesday 3:45 pm-4:45 pm
By appointment: https://tinyurl.com/y4rsjqfp

Course Modality
This course will be run as a flipped class. Lecture content is available online along with the slides and Stata examples. Students will be required to view the lectures, respond to discussion questions, and complete Stata exercises online before the live session. In-person class time will be spent focusing on those questions and issues that students flagged as unclear or benefitting from more discussion. After class, you will have a lab with our TA and have another chance to over any questions.

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 class participation (15 points), five problem sets (12 points each), and a midterm exam (25 points). The class participation grade will be awarded on a check grading scheme, for responding to online questions for asynchronous content and attending and participating in live sessions. All problem sets will make use of Stata, so please ensure you are familiar with how to access this program at NYU.
**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**

8 September, Class 1: Introduction to causality and review of the bivariate regression model
15 September, Class 2: Randomized controlled trials: **Assigned**: PS1.
22 September, Class 3: Multiple regression: estimation and interpretation
29 September, Class 4: Multiple regression: hypothesis testing. **Due**: PS1.
6 October, Class 5: Multiple regression: challenges **Assigned**: PS2.
13 October, Class 6: Dummy variables
20 October, Class 7: Direct regression analysis of policy: possibilities and perils. **Due**: PS2.
27 October, Class 8: Midterm
3 November, Class 9: Multiple regression: functional form
10 November, Class 10: Instrumental variables. **Assigned**: PS3.
17 November, Class 11: Regression Discontinuity. **Assigned**: PS4. **Due**: PS3.
24 November, Class 12: Introduction to panel data.
8 December, Lecture 14 Class 14: Introduction to time series and forecasting
**Due 17 Dec**: PS5.
Readings
All required and many optional readings are on the NYU Classes site.

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:
- Krueger, Alan, “How Computers Have Changed the Wage


**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.