Online course
Synchronous meeting: Wednesdays 6pm - 8pm
Professor J. W. Mason
Email: profjwmason@gmail.com
Office: New Building 9.63.09
Office hours: By appointment

**Course description:** The purpose of this course is to help students acquire the basic skills for policy-oriented quantitative research in economics. It is intended to prepare students both for continued graduate study in economics or other social sciences, and for the sort of quantitative work typically performed in advocacy and research organizations. The course is designed to (1) develop the concrete skills needed for statistical analysis in public-policy settings; (2) encourage students to think about how to use quantitative data to convincingly answer real-world questions; and (3) help students become informed, critical consumers of quantitative economics research.

This is not a standard econometrics course. While we will read scholarly papers, and work on reproducing some of their results, the primary goal of this course is to prepare students to use empirical, quantitative economics to communicate with a broader, nonacademic audience – policy makers, advocates, elected officials, and the media. Our focus will be on how to relate quantitative evidence to concrete political questions, and on how to present results clearly and convincingly, as much as on the statistical techniques themselves. At the same time, the specific topics we discuss and the literature we look at will be drawn from policy-oriented economics. We will look at how empirical economics has been used to make arguments around issues like minimum wages, the distribution of the tax burden and the effects of unions, as well as on macroeconomic issues like government debt and monetary policy. The primary goal of the course is to prepare students to do empirical work in policy, government and media settings, but it will also be useful for students who intend to pursue further graduate work in economics or other social sciences.

Over the course of the semester, we will engage in two kinds of activity. First, students will read and discuss various empirical papers and reports that illustrate how quantitative research is used in real-world economic debates. The goal in discussing these papers is both to explore the techniques typically used in policy-oriented economic research, and to practice critically assessing such work. Second, students will practice using statistical software to analyze data and present the results. In class assignments students will go through all the steps of doing quantitative work - finding appropriate data, preparing and cleaning it, analyzing it statistically to answer meaningful questions, and presenting the results in a clear, compelling way. While these exercises will sometimes involve doing regressions, as is typical in econometric settings, we will also explore other, non-regression based ways of analyzing quantitative data. In all the exercises, we will be working with real data, and addressing the kind of concrete questions that arise in policy, businesses, journalistic and similar contexts. A major focus of the class is on communicating statistical results in ways that are illuminating, persuasive, professional and rigorous.
In the first half of the course, we develop basic concepts related to probability distribution and descriptive and exploratory analysis. In the second half, we develop the econometrics approaches introduced in Research Methods I. We will spend some time on the specific problems that arise with time-series data, since that is what we rely on in many policy settings, especially on macroeconomic questions. We will also look at decompositions – a simpler alternative to regressions when data is linked by accounting relationships. We will spend several weeks on questions related to causality, a central concern in empirical economics. Our focus is always on how statistical techniques can be used to address concrete, real-world questions.

The class will make extensive use of the statistical package R; all assignments and the final project should be done using R unless specific permission is granted to use a different package. A major goal of the class is for students, by the end of the semester, to feel prepared to use R in their own work and to continue to educate themselves in its use.

Readings for the course will consist primarily of published empirical studies. We will also read some textbook chapters on statistics and econometrics, and on effective presentation of quantitative data. There will also be readings on the conceptual foundations of quantitative analysis, and on good and bad practices in empirical analysis. In addition to the readings, we may have one or more outside speakers discuss their experience doing quantitative work in policy research and advocacy.

Student work over the semester will consist mostly of exercises in R to practice particular techniques. There will also be a few written assignments focused on critically assessing empirical work. Each student will also produce a final project – their own quantitative analysis which they will present to the class at the end of the semester.

Course structure. This is a synchronous online course. We will meet via Zoom at the scheduled course time. Video lectures will be distributed prior to class; I will expect you to have watched this before the meeting.

All course materials and announcements will be distributed via a Google classroom. The official course Blackboard site will not be used.

Course requirements: There are two requirements for the course, problem sets and the final project. The problem sets together count for 75 percent of the course grade. The final project counts for 25 percent.

Problem sets. There will be approximately ten assignments over the course of the semester. These assignments will involve using economic data to practice the techniques discussed in the class. All assignments must be completed in R, unless specific permission is given to use different software. Because we will discuss assignments in the following class, assignments cannot be accepted late.

Students are encouraged to discuss the problem sets with each other, but each person must submit their own work.

Final project. The final project consists of a brief report on a policy-relevant question using quantitative data, and an accompanying presentation that will be given via video. Early in
the semester, I will distribute a list of suggested project topics and suitable data sources. Students may, at their option, do a final project on a topic not on the list, but this is strongly discouraged unless it is an area where they have already done substantial work and are familiar with the relevant data sources. There is not time in the semester to develop an empirical project from scratch.

Students will distribute presentations of their projects to the class, and part of the last few sessions, plus an additional session if necessary, will be used to discuss them. Presenting the project to the class is an integral part of the project.

Attendance. While there is no explicit grade for attendance and participation, students are expected to be present in the online meetings and take part in class discussions.

Office hours. Because the class is online, all office hours are via Zoom, and will be held by appointment only. Students are strongly encouraged to schedule meetings with me to discuss any difficulties with the readings, assignments or other elements of the course. Students are required to meet with me at least once during the first month of the class, in order to choose a presentation topic.

Academic honesty. Students should be aware of John Jay’s policy on academic honesty. It is available online at [http://www.jjay.cuny.edu/web_images/Policyand_Procedures.pdf](http://www.jjay.cuny.edu/web_images/Policyand_Procedures.pdf).

Readings. We will read selections from the following books:

Kieran Healey, *Data Visualization: A Practical Introduction*

Kosuke Imai, *Quantitative Social Science: An Introduction*

Angrist and Pischke, *Mostly Harmless Econometrics*

Scott Cunningham, *The Causality Mixtape*

You do not need to purchase these books. Electronic copies of all of them will be provided.

We will also read a number of empirical papers and reports. All readings will be available in electronic form, and can be downloaded from the course website.

Additional required and optional readings will be introduced through the semester.

Course outline. The following outline is preliminary - do not rely on this syllabus for readings, as they will change. Any changes to the readings, as well as additional required and supplemental readings, will be announced in class and via email as well as on the course website. All readings should be done prior to the class meeting for which they are assigned.
Aug. 26  **Telling stories with data**  
Imai, p. 10-27  
Freedman 1991, “Statistical Methods and Shoe Leather”  
Case study: Austerity in Europe  
DeGrauwe and Ji 2013, “Panic-driven austerity in the Eurozone and its implications”

Sept. 2  **Description**  
Healey, ch. 1-2  
Tufte, *The Visual Display of Quantitative Information*, ch. 1  
Case studies:  
Bivens et al. 2016, “It’s time for an ambitious national investment in children”

Sept. 9  **Probability and distributions**  
Imai, ch. 3  
Cleveland, *Visualizing Data*, ch. 2  
Case study: Changes in income distribution  
Piketty, TBD  

Sept. 16  **Joint distributions**  
Healey, ch. 3-4  
Case study: Labor market transitions during the pandemic  
Rho et al. 2020, “Labor Market Transitions of Young People During the Pandemic”

Sept. 23  **Decompositions**  
Case study: Labor force participation  
Council of Economic Advisors 2014, “The Labor Force Participation Rate since 2007”  
Case study: Wage distribution  
Case study: State and local government budgets  

Sept. 30  **Regression fundamentals**  
Healey, ch. 6  
Imai, ch. 4  
Cunningham, p. 35-66  
Case study: Job loss during the pandemic  
Gezici and Ozay, “How Race and Gender Shape COVID-19 Unemployment Probability”

Oct. 7  **Parameter estimates and hypothesis testing**  
Imai, ch. 7  
Case study: Estimating Okun’s law  
Reich 2013, “The Rising Strength of Management, High Unemployment and Slow Growth: Revisiting Okun’s Law”
Oct. 21  **Time series**  
Case study: Trade elasticities  
Lopez and Thirlwall 2014, “Trade liberalization, the income elasticity of demand for imports, and growth in Latin America”  
Case study: Dynamics of public debt  

Oct. 28  **Explaining outcomes**  
Gelman and Imbens, “Why Ask Why?”  
Case study: The racial wage gap during World War II  
Case study: The gender wage gap  

Nov. 4  **Causality**  
Cunningham, p. 67-104  
Elwert, “Thinking Clearly About Correlations and Causation: Graphical Causal Models for Observational Data”  
Case study: The 2009 fiscal stimulus and employment  
Chodorow-Reich 2014, “Does State Fiscal Relief During Recessions Increase Employment?”

Nov. 11  **Instruments and experiments**  
Cunningham, p.205-244  
Case study: Immigration and wages  
Card 1990, “The Impact of the Mariel Boatlift on the Miami Labor Market”

Nov. 18  **Comparisons and controls**  
Cunningham, p. 153-204, 263-286  
Dufo and Mullainath, “How Much Should we Trust Differences-in-Differences Estimates?”  
Case study: State policy choices and employment  
Weller and Zamarripa 2020, “All Risk, No Reward: Identifying the Economic Fallout From Premature Reopenings”  
Dube et al. 2016, “Unemployment Insurance Generosity and Aggregate Employment”

Dec. 2  **Quantile regression**  
Koenker and Hallock 2001, “Quantile Regression”  
Case study: Union wage premium  
Schmitt 2008, “The Union Wage Advantage for Low-Wage Workers”  
Case study: Welfare reform  

Dec. 9  **Critical perspectives on econometrics**  
Card and Krueger 2016, interview

Dec. 16  Additional session to discuss student presentations, if necessary