POL-UA 850
Introduction to Research Methods for Politics

Spring Semester 2021
Monday, Wednesday, 9:30 –10:45 AM ET

Prof. Anna Harvey
`anna.harvey@nyu.edu`
Office Hours: W 10:45 AM –12:00 PM ET (or by appointment)
Office Hours signup: https://www.wejoinin.com/sheets/sshya

TA	Email	Office Hours
Giacomo Lemoli	gl1759@nyu.edu	Mon 11 AM - 1 PM ET
Franziska Roscher	franziska@nyu.edu	Wed 4 - 6 PM ET
Carolina Torreblanca	carolina.torreblanca@nyu.edu	Th 4 - 5 PM; Fri 1 - 2 PM ET

Overview

Can we identify racially discriminatory policing practices? Does access to health insurance reduce crime? Does an increase in the minimum wage reduce employment? Do restrictions on abortion negatively affect women's economic outcomes?

These are just a few of the numerous questions that social scientists are tackling with quantitative data. In order to be able to answer these questions, it is critical to learn open-source programming for data visualization and analysis, the basics of probability and statistics, as well as the principles of causal inference.

This class will introduce social science students to some of the techniques used in the study of quantitative social science. Part of this task is conceptual: helping students to think sensibly and systematically about causality and inference. To this end, students will learn about how to apply the principles of experimental design to non-experimental data. But part of the task is practical, too: students will learn a 'toolbox' of methods—including the open-source programming language R for data visualization and analysis—that will enable them to execute their plans.

This class is highly recommended for all students interested in politics and public policy. No prior programming or statistics experience is required.

Textbooks

The following textbooks will be used for the course. Chapters 1 - 5 of the book **DSS** are available in pdf format on NYU Classes. The book **QSS** is available via online sellers such as `amazon.com`. It

will also be available via the library course reserves system. The book **MM** is available via online sellers and is a great overview of causal inference in the social sciences.

Required

Imai, Kosuke, and Elena Llaudet. In Progress. Data Analysis for Social Science: A Friendly Introduction. Princeton University Press (**DSS**).

Imai, Kosuke. 2018. Quantitative Social Science: An Introduction. Princeton University Press (**QSS**). QSS Publisher's Webpage: `http://qss.princeton.press`.

Recommended

Angrist, Joshua D. & Jorn-Steffan Pischke, 2015. Mastering Metrics: The Path from Cause to Effect. Princeton University Press (**MM**).

Software

We will be using **R**, an open-source programming language, to conduct data visualization and analysis. R is free, open source, and available on all major platforms. **RStudio** (also free) is a graphical interface to R that is widely used to work with the R language. You can access our class RStudio environment at this link using your NYU netid: https://polua-850-spring.rcnyu.org. You can also install R and RStudio on your own computer; see below. You can find numerous resources for R on the internet. You can also learn R in the **DataCamp** environment throughout the semester.

R download: `https://www.r-project.org`
RStudio download: `https://www.rstudio.com`

Both the DSS and the QSS textbooks teach R programming along with causal inference/introductory statistics. The best way to learn R is to practice writing and executing code as you read the text. The R scripts and data for DSS Chaps 1 - 5 have been uploaded to Classes and to our class RStudio environment.

Course Logistics and Requirements

This course consists of twice-weekly lectures and a weekly section. The weekly lectures will be online; we will record the lectures for asynchronous viewing. You are free to attend the live online lectures or to watch the recorded versions. We will also post all lecture slides to Classes. Note that a benefit of attending the live online lectures is the ability to ask questions in real time using Zoom chat. There will also be an extra credit opportunity for answering ungraded quizzes embedded in the lecture slides within 24 hours of each lecture (see below). Four of the sections are fully online; one will be offered both in-person and online. Sections will also be recorded and posted along with

section slides.

Sections: Your TAs will hold sections. Section times and places are:

- Section 002: Fri 11.00 AM - 12.15 PM; 60 Fifth Ave 150 with Carolina Torreblanca

- Section 003: Mon 3.30 PM - 4.45 PM; online with Franziska Roscher

- Section 004: Thu 9.30 AM - 10.45 AM; online with Giacomo Lemoli

- Section 005: Tues 12:30 PM - 1:45 PM; online with Franziska Roscher

- Section 006: Tues 2:00 PM - 3:15 PM; online with Giacomo Lemoli

Grade: Your final grade will be based on a combination of:

- **Homeworks (50%)**. There will be five homeworks, each worth 10% of the final grade. You will generally have at least a week to complete a homework. The homeworks will be focused on programming for data analysis and will often involve real data.

  You may work on the homeworks with your classmates, though each student must write up and submit their answers individually. If you choose to work with classmates, please write the names of any individuals with whom you consulted at the top of your assignment. This disclosure will protect you in the event of any concerns about academic integrity.

  Submission instructions: All homeworks must be submitted remotely via NYU Classes by 5 pm EST on the due date. You will be provided a template in RMarkdown for each homework in both NYU Classes and the shared directory of JupyterHub. If you prefer to use a different text editor or word processor (e.g.,Word), you may submit your homeworks in that way. If you do not use RMarkdown, you will need to copy and paste your code into your submission. Late assignments will be penalized 1/3 letter grade per day late.

- **Two midterm exams (30%):** There will be two midterm exams, each worth 15% of the course grade. Both midterms will be 24-hour take home exams. You may use the lecture slides and recordings, your notes, and any assigned readings during the exam. However, you may not consult with anyone on course material during these exams. Any clarifying questions should be directed to your TA by email. The midterms will focus on content from Weeks 1-5 and 6-10, respectively. However, some topics are cumulative so earlier material may be relevant.

  Submission instructions: Both midterms will be opened at at 9 am EST on NYU Classes and due at 9 am EST the next day. You will submit your midterms to NYU Classes. As with the problem sets, you will be provided with an RMarkdown template for each midterm. You can write up your answers in RMarkdown using these templates or in a text editor/word processor of your choice.

- **Final Exam (20%)**: The final will be 24-hour take home exam during the assigned exam period. You may use the lecture slides and recordings, your notes, and any assigned readings during the exam. However, you may not consult with anyone on course material during these

exams. Any clarifying questions should be directed to your TA by email. The final will be cumulative with particular emphasis on the material from weeks 11-14.

Submission instructions: Pending guidance for final exams, the exam will be opened at at 9 am EST on NYU Classes on the appointed date and due at 9 am EST the next day. You will submit your final exams to NYU Classes. As with the problem sets and midterms, you will be provided with an RMarkdown template. You can write up your answers in RMarkdown using this template or in a text editor/word processor of your choice.

- **Extra Credit (up to 2%)**: Almost every lecture will contain a link to an ungraded "quiz". These quizzes help to: break up long lectures; allow the instructor/TAs to identify lapses in understanding or issues with class pacing; provide opportunities for self-diagnosis of any issues with course material so you can seek help; improve your course grade via extra credit.

  To incentivize students to stay current with the lectures, at the conclusion of the semester, we will randomly select four lectures from the semester. If a student completed the associated quiz within 24 hours of the conclusion of that lecture (whether the answer was right or wrong), we will award extra credit equivalent to 0.5% of the course grade per quiz, for a maximum of 2% of the course grade.

The final exam date is set by the registrar and cannot be moved. Once confirmed, the midterm days and times are likewise firm. If you miss an exam due to some unavoidable **documented** illness or other serious circumstance, we will not administer a make-up but will give you a waiver from the exam.

Academic Integrity

The University is very clear that students' work is expected to be their own, and that plagiarism is not tolerated. The same rules apply here.

Homeworks:

You may consult and/or work with other students in this class, but any work you submit must be your own. If you consult or work with another student, you must list their name at the top of your submission. Do not copy another individual's work or answers. Do not allow another individual to copy your work or answers.

Take-home midterms and final exam:

You may use all resources from the course including texts, lecture materials, and section materials. You may not communicate in any way with any individual about course material during any exam. The only exception is for clarifying questions which should be directed to your TA. Do not copy another individual's work or answers. Do not allow another individual to copy your work or answers.

Disability Accommodation

Students requesting reasonable accommodations due to a disability are encouraged to register with the Moses Center for Student Accessibility. You can begin the registration process by going to www.nyu.edu/csa and completing an online application. Once completed, an Accessibility Specialist will be in contact with you. Students requiring services are strongly encouraged to register prior to the upcoming semester or as early as possible during the semester to ensure timely implementation of approved accommodations.

Schedule

The following is an anticipated schedule for course topics. We hope that this schedule is an accurate plan of the classes that follow. Still, changes may need to be made and you will be informed of them in advance: your responsibility as a student is to keep yourself informed of all such changes and to be aware of exam and homework dates.

Lecture Number	Lecture Date	Topic	Reading	Notes
1	2/1	Introduction 1	DSS 1.1-1.4	
2	2/3	Introduction 2	DSS 1.5-1.8	
3	2/8	Causal Effects 1	DSS 2.1-2.2	HW 1 out
4	2/10	Causal Effects 2	DSS 2.3-2.4	
5	2/17	Causal Effects 3	DSS 2.5-2.8	
6	2/18	Population Characteristics 1	DSS 3.1-3.2	HW 1 due; HW 2 out
7	2/22	Population Characteristics 2	DSS 3.3-3.4	
8	2/24	Population Characteristics 3	DSS 3.5-3.6	
9	3/1	Population Characteristics 4	DSS 3.7-3.8	HW 2 due
10	3/3	Midterm		
11	3/8	Linear Regression 1	DSS 4.1-4.2	
12	3/10	Linear Regression 2	DSS 4.3	HW 3 out
13	3/15	Linear Regression 3	DSS 4.4	
14	3/17	Linear Regression 4	DSS 4.5	
15	3/22	Linear Regression 5	DSS 4.6-4.7	HW 3 due
16	3/24	Linear Regression & Causality 1	DSS 5.1-5.2	
17	3/29	Linear Regression & Causality 2	DSS 5.3-5.4	
18	3/31	Linear Regression & Causality 3	DSS 5.5-5.6	
19	4/5	Midterm 2		
20	4/7	Probability 1	QSS 6.3	
21	4/12	Probability 2	QSS 6.4	HW 4 out
22	4/14	Uncertainty 1	QSS 7.1.1-7.1.2	
23	4/21	Uncertainty 2	QSS 7.1.3-7.1.4	
24	4/26	Uncertainty 3	QSS 7.1.5-7.1.6	HW 4 due; HW 5 out
25	4/28	Uncertainty 4	QSS 7.2.1-7.2.3	
26	5/3	Uncertainty 5	QSS 7.2.4-7.2.6	
27	5/5	Uncertainty 6	QSS 7.3.1-7.3.2	HW 5 due
28	5/10	Uncertainty 7	QSS 7.3.3-7.3.4	