NYU | ROBERT F. WAGNER GRADUATE SCHOOL OF PUBLIC SERVICE

UPADM-GP 111.003
Quantitative Analysis for Public Policy
Spring 2024

Instructor Information
- Judy C. Polyné
- Email: judy.polyne@nyu.edu
- Office Hours: By appointment

Teaching Assistant Information
- Shashank Sreedharan
- Email: shashank.sreedharan@nyu.edu
- Office Hours: TBD

Course Information
- Class Meeting Times: Thursdays, 01/25– 05/2, 6:20 – 8:50 pm
- Class Location: 60 Washington Square South (Kimmel) Room 808
- Lab Meeting Times: Mondays, 0/01– 05/10, 3:30 – 4:30 pm
- Lab Location: 60 Fifth Ave Room 110

Course Description
Introduces students to basic statistical methods and their application to management, policy, and financial decision-making. Covers the essential elements of descriptive statistics and univariate and bivariate statistical inference and introduces multivariate analysis. Emphasizes applied statistics and data analysis in addition to statistical theory. Encourages a critical approach to reviewing statistical findings and using statistical reasoning in decision-making.

Translation: In this class, you will learn about how to use data to think about social science questions. This course is introductory only in the sense that we assume no prior knowledge of statistics or advanced mathematics. We plan to move fast and help you acquire the tools you need to be successful in a rapidly evolving field, to be able to perform your own independent analysis in a variety of contexts, to understand published research, and to be a sophisticated consumer of quantitative information. You will leave this class with technical skills that you can use and a better ability to understand the world around you.

Course and Learning Objectives
By the end of the semester, you should be able to:

1. have a broader and more general understanding of statistics and social science research when reading articles, both academic and general;
2. be able to identify the appropriate statistical analyses to apply to specific research questions;
3. be proficient in using Stata for conducting statistical analyses and;
4. be able to form conclusions based upon results of the statistical analyses.

Learning Assessment Table

Course Learning Objective Covered	Corresponding Assignment Title
#1,3	Homework 1
#1,2	Homework 2
#1, 2, 3, 4	Homework 3
#1, 2, 3, 4	Homework 4
#1, 2, 3, 4	Homework 5
#1, 2, 4	Midterm Exam
#1, 2, 3, 4	Homework 6
#1, 2, 3, 4	Homework 7
#1, 2, 3, 4,	Homework 8
#1, 2, 3, 4	Homework 9
#1, 2, 3, 4	Homework 10
#1, 2, 3, 4	Final Project

Textbooks and Materials
Readings for this class will come from a textbook, listed below, and from other handouts and materials that I will produce and post on the Brightspace site.

Required:
- The course text is Joseph Healey and Christopher Donoghue's **Statistics: A Tool for Social Research** (Cengage Publishers, 11th edition). This is offered on the publisher's website in a number of configurations. **To buy just an online text**, get ISBN: 9780357711040 ("Access the eTextbook"; costs starting at $39.99).
- Stata

Accessing STATA software

The course requires access to STATA software. You must have STATA software on your computer by the first day of recitation.

Buying a Stata license for your own computer

We will use Stata/BE version 18 in Stat 1. The BE version is sufficient for this course. Stata/SE is not required. Stata/BE 18 **can be leased.** The price for a new six- month license is $48, making this the best price for putting Stata on your personal computer.

** Note ** you must follow that link **and switch to the "6-month" tab** to see the $48 deal.

Also **note:** you must interact with vendors directly. Wagner faculty will not be able to assist you with purchase, installation, or getting your software up and running.

Accessing Stata on campus

You can access Stata on campus at various NYU IT locations. Visit the **Student Technology Centers and Computer Labs page** for more information.

Accessing Stata via NYU's Virtual Computer Lab (VCL)

NYU provides remote access to Stata via its Virtual Computer Lab (VCL) vcl.nyu.edu. However, in our experience this service functions intermittently, leading to lots of frustration and lost time. We do not recommend using the VCL and cannot support users.

Course Requirements and Grading
Your performance in this class will be assessed through multiple assignment types. These components are weighted:
- Pre-Class Quizzes: 10%
- Attendance/Participation: (Each student is allowed one absence, not counting the midterm exam.)
- Homework Assignments: 20%
- Midterm Exam: 30%
- Final Project: 30%

Pre-class quizzes:
These are available online in advance of class via the Quiz tab on Brightspace. These are multiple-choice questions based on the reading for that week as well as the past material for the course. These questions focus on major themes to help you identify and review critical concepts, prepare for class each week, and prepare for the exam. These are for you to do on your own, not as part of a group, because they are graded on the basis of how many you answer correctly. These should only take about 2-15 minutes to complete: only open the quiz when you are ready. They need to be completed by the Thursday of the following class by 1:00 pm ET. I will drop the lowest quiz grade.

Homework Assignments:

Your homework assignments are posted online and are due before the next lecture. Your homework assignments will be graded based in part on how well you answer the questions. While you must turn in your own answers, it is acceptable to work on these with other people in the course. The Monday lab section will address only the most difficult questions and will focus mostly on the Stata portion of the assignment, so you must attempt your homework in advance.

You must turn in your homework via Brightspace by 1pm on Thursdays one week after it has been assigned. No late homework will be accepted. No exceptions.

Midterm Exam:

The midterm exam will be given on Thursday March 14th.

Final Project:

The final project will consist of a data set and some research questions. You will conduct the appropriate statistical analyses and provide a write up of the results. This will be due at the end of the semester (in lieu of an in-person final exam). Details for this project will be released later in the course via Brightspace. This will be turned in via Brightspace.

Administrative Details

This section provides a few other guidelines for the course.

Course Organization:

This course has two weekly meetings – a lecture and a lab section. Attendance is part of the grade and will be recorded for both.

The lectures will be based on, but not limited to, the readings listed for that lecture period: do the
reading in advance of class. In addition, you should review the past week's homework solutions and make sure you remember the main points from the prior lecture as well. You will really need to do the reading to have success on the concept quizzes.

Mr. Shashank Sreedharan will teach the lab section; this focuses mostly on broad discussions on the points raised by the more difficult homework problems or key skills students seem to be struggling with overall. Before you come to the lab section, start your homework. There will not be time in the lab sections to cover every homework question; you will get the most out of these by preparing in advance.

Anticipated Plan:
- Thursdays: Lecture
- Fridays - Sundays: Do the Homework; Do something else. It's a big, interesting world.
- Mondays: Lab Section, Ask Homework Questions, Finish HW.

- Tuesdays/Wednesdays: Read, Do the Concept Questions (Quiz)
- Fridays: Lab Section, Ask Homework Questions, Finish HW.

Office Hours/Additional Help:
I will hold office hours by appointment. Typically, it's best to schedule something with me for right after class. If this doesn't work, we can find another time that works.

Email:
"Should we email you or email Shashank? In general, you should copy both of us. Email is the quickest way to get a response from us regarding your questions for the course.

Late or Missing Assignments:
No late assignments will be accepted and there are no exceptions. You must complete the concept question quizzes by their deadline and submit the homework online by the due date.

Special Requests:
Excused absences and other accommodations should be requested and discussed in advance. A student with a qualified disability requesting a reasonable accommodation should do so through the Moses Center.

The Course Website:
All of the materials you will need for the course will be posted on Brightspace and via the online textbook. You should regularly check the Brightspace site and, of course, pay attention to course-related emails sent to you through it. These will often contain important announcements.

Technology:
This is a high-use course for technology – computers, cell phones, etc. are often useful in class for doing computations and accessing the course website.

Course Schedule

Date	Lecture	Topic	Reading		Quiz	HW	Lab?

01/25	01	Introduction to the Course We will discuss the role of quantitative methods in public policy and other social sciences. We will review the syllabus of this course. We will also discuss descriptive statistics and levels of measurement.	Syllabus Chapters 1 and 2		No	None	Yes
02/01	02	Quantitative & Qualitative Data & Numerical Descriptive Measures We will cover the basics of descriptive statistics, which include categorizing variables, measuring center and spread.	Chapters 3 - 4		Yes	HW01	Yes
02/08	03	Normal Distribution We will introduce the Normal Curve, Standard Normal Probability Distribution, and Computing Probabilities for any normal probability distribution. This concept is fundamental to this course.	Chapter 5		Yes	HW02	Yes
02/15	04	Samples, The Sampling Distribution and Central Limit Theorem We will cover best types of samples to use in Inferential Statistics, and a theorem that will help us bridge the gap from selecting a sample to using that sample to make an inference about the population.	Chapter 6		Yes	HW03	Yes

02/22	05	Confidence Intervals We will begin to formally study inferential statistics, which is the foundation for social science research. The idea is that researchers take representative samples of data and make inferences about a population based upon the characteristics of that sample	Chapter 7		Yes	HW04	Yes
02/29	06	Hypothesis Testing, Part I Lecture this week provides a statistical foundation for the most important question a researcher will ask: does this yield significant results? More generally, the hypothesis testing framework provides guidelines for deciding if the characteristics of one group are different than other. We will be looking at comparing one group to a population for both large and small samples.	Chapter 8		Yes	HW05	Yes
03/07		Midterm Review We will be reviewing materials for the midterm exam, which will be given next week. Practice problems will be provided ahead of time and you will be given an opportunity to ask questions. Lab this week will also be an opportunity to ask questions.			Yes	HW06	Yes
03/14		Midterm Exam You will be taking the midterm exam this week online. The exam is open-book, open-notes, and calculator permitted.			No	No	No

03/28	07	Hypothesis Testing, Part II As a continuation from Lecture 06, we will be looking at hypothesis testing for two groups compared to each other for both large and small samples.	Chapter 9		Yes	No	Yes
04/04	08	ANOVA This is a continuation of hypothesis testing. We will be looking at how to conduct hypothesis tests for studies that contain more than two groups.	Chapter 10		Yes	HW07	Yes
04/11	09	The Chi-Square Distribution Today we will cover a distribution that can be used for three different types of research questions: are two categorical variables independent, is the distribution of a categorical variable as expected, and is the variance of the sample the same as the population?	Chapter 11	Yes	HW08	Yes	
4/25	10	Regression, Part I This is the last major topic covered in class this semester. We will look at how to analyze (and create hypotheses for) continuous data. Regression is also related to covariance and correlation, which we will study as well.	Chapter 13	Yes	HW09	Yes	

05/02	11	Regression, Part II We will continue studying regression models and introducing multiple-variable (multivariate) regression. As part of this class, there will also be an opportunity to ask any last questions on the final project.	TBD	Yes	HW10	Yes
05/09		Final Project Working Session Your final projects are due 05/13/2024 by at 6pm on Brightspace.		No	No	No

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" button. 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.