NYU | ROBERT F. WAGNER GRADUATE SCHOOL OF PUBLIC SERVICE

UPADM-GP 111: Quantitative Analysis for Public Policy
Fall 2022

Instructor Information
- Judy C. Polyné
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- Office Hours: By appointment

Teaching Assistant Information
- Ashan Kiridena
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- Office Hours: By appointment

Course Information
- Class Meeting Times: Wednesday, 9/7 – 12/14, 11:00am – 1:30 pm
- Class Location: Bobst Room LL-138
- Lab Meeting Times: Fridays, 9/9 – 12/9, 8:00am – 9:00am
- Lab Location: GCASL 261

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 Excel 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:
● Anderson, D. R., Sweeney, D. J., Williams, T. A., Camm, J. D., & Cochran, J. J. (2020). *Modern business statistics with Microsoft Excel*. New York: Cengage Learning.
● MindTap for Essentials of Modern Business Statistics with Microsoft® Excel®, 8th Edition (NOTE: This is the required courseware connected to the required textbook; an e-book is included in MindTap so you do not need to purchase the textbook separately unless you require a physical copy of the book).
● Microsoft Excel in Office 365

The course requires access to Excel. Within Excel, the Data Analysis ToolPak should be installed. Please download the full version of Excel, which is available through Office 365 (register with your NYU email). Instructions on how to download Office 365 are available here:
https://tisch.nyu.edu/cit/faq/gain-access-to-office365#
You must download the full version of Excel to your computer. The online version will not be sufficient for this course.

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: 10% **(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 Brightspace Quizzes feature. 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 Tuesday before class by 11:55pm 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 Friday lab section will address only the most difficult questions and will focus mostly on the Excel portion of the assignment, **so you must attempt your homework in advance**.

You must turn in your homework via Brightspace one hour before class one week after it has been assigned. **No late homework will be accepted. No exceptions. I will drop the lowest homework grade.**

"Midterm" Exam:

The "midterm" exam will be given on Wednesday, November 8th. More information will be shared as the exam date approaches.

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 online.

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 will be recorded.

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. Ashan Kiridena 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:
- Wednesdays: Lecture
- Thursdays: Review Notes, Do the Homework
- Fridays: Lab Section, Ask Homework Questions, Finish HW.
- Saturdays - Tuesdays: Read, Do the Concept Questions (Quiz); Do something else. It's a big, interesting world.

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. There is also a lot of optional materials through MindTap. These include Excel videos, applets, and ungraded practice problems.

Email:

"Should we email you or email Ashan?" 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 and MindTap. You should regularly check the Brightspace website 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, calculators, etc. are often useful in class for doing computations and accessing the course website.

Date	Lecture	Topic	Reading/MindTap	Quiz	HW	Lab?
09/7	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 and go through Brightspace. We will also get Excel set up on everyone's laptops.	Lecture 01 Introductory Materials Chapter 1	No	HW1 Due 09/14 Plus, watch the introductory videos in MindTap	Yes
09/14	02	**Quantitative & Qualitative Data & Numerical Descriptive Measures** We will cover the basics of descriptive statistics, which include categorizing variables, measuring center and spread, and work on some basic graphing in Excel.	Chapters 2 - 3	Yes Due 09/20	HW02 Due 09/21	Yes
09/21	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 6	Yes Due 09/27	HW03 Due 09/28	Yes
9/28	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 7	Yes Due 10/04	HW04 Due 10/05	Yes

Date	Lecture	Topic	Reading/MindTap	Quiz	HW	Lab
10/5	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 8	Yes Due 10/11	HW05 Due 10/12	Yes
10/12	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.	Chapters 9	Yes Due 10/18	HW06 Due 10/19	Yes
10/19	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.		No	No	Yes

Date	Lecture	Topic	Reading	Quiz	HW	Lab?
10/26	08	**"Midterm" Exam** You will be taking the "midterm" exam today in class. The exam is open-book, open-notes, and calculator permitted. Please remember to bring all of the necessary materials to class with you, including a pencil.		No	No	No
11/2	09	**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 10	Yes Due 11/8	HW07 Due 11/9	Yes
11/9	10	**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 13	Yes Due 11/22	HW08 Due 11/23	Yes
11/16		**NO LECTURE**				No
11/23 (ZOOM)	11	**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 12	Yes Due 11/29	HW09 Due 11/30	Yes
11/30	12	**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 14	Yes Due 12/06	HW10 Due 12/07	Yes

Date	Lecture	Topic	Reading	Quiz	HW	Lab?
12/7	13	**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.	Chapter 15	Yes Due 12/13	HW11 Due 12/14	Yes
12/14	14	**Finishing the Semester** Your final projects are due 12/20/2022 by 1pm on Brightspace. **Use this time to work on it.**				Yes
12/20		**Final Project Due**				

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.