PADM-GP 4503.001
Introduction to Data Analytics for Public Policy, Administration, and Management
Spring 2023

Instructor Information

- Poranee (Pam) Kingpetcharat
- Email: pk1030@nyu.edu
- Office Hours: Please email me with your available dates & windows of time to quickly coordinate office hours that work best for you.

Course Information

- Class Meeting Times: Wednesdays, 4:55 PM - 6:35 PM ET
- Class Location: 19 West 4th, Room 102 Loc: Washington Square

Course Prerequisites

- None

Course Description

This course aims to establish a first-principles understanding of qualitative and quantitative techniques, tools, and processes used to wield data for effective decision-making. Its approach focuses on pragmatic, interactive learning using logical methods, basic tools, and publicly available data to practice extracting insights and building recommendations. It is designed for students with little prior statistical or mathematical training and no prior pre-exposure to statistical software.

Course and Learning Objectives

Students will be able to:

- Explain the value of data, assess data arguments, identify alternatives to using data, and leverage administrative data to ground-truth research data.
Structure problems, develop hypotheses, identify assumptions, and reference sources and considerations in a rigorous and transparent manner.
- Identify, obtain, understand, prepare, and analyze data using standard approaches and industry-standard tools.
- Package and persuade with data visualization techniques and tools [PowerPoint, Excel, Tableau] to reach specific objectives.

How this Course Relates to Other Courses

This is a foundational course. There are no prerequisites. It is designed to introduce students to first principles\(^1\) approaches to data analytics to build their comfort in navigating ambiguity, leveraging quantitative skills, and using industry-standard data tools and technologies.

Evaluation

The course will be evaluated through class participation [as measured by short quizzes and exit surveys] (25%), two problem sets (25%), and one final project (50%). Problem sets will use Excel and PowerPoint, so students should ensure they are familiar with how to access these applications.

Late Policy

Assignments are due on the class dates indicated on the course’s NYU Brightspace site. Late submission of assignments will lead to a two-point reduction for missing the deadline and another two-point reduction for each day thereafter until submitted.

Course Structure

The class includes lectures, readings, break-out session group work, and independent project work. Class attendance is critical as the course is structured as an experiential learning course. Students are strongly encouraged to apply approaches and tools learned in the course to their specific sector interests to deepen their content knowledge and understand the forces shaping trends in that sector.

Expectations

Class participation

The course is designed as an experiential learning course, so class participation, group work [via breakout groups], and responsiveness to electronic surveys distributed is crucial.

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\(^1\) A first principle is “the fundamental concepts of assumptions on which a theory, system, or method is based.” [English Oxford Dictionary]
Absenteeism, punctuality, and in-class conduct

Students are expected to attend all classes and arrive on time. Systematic tardiness and disruptive behavior will negatively impact your grade. Please contact me via e-mail if you need to miss a class due to unavoidable circumstances.

Class Overview

This is an NYU half-course conducted over 7 weeks in 100-minute sessions per week.


Topics

- Describe the value of data and how it can lead to informed decisions
- Identify the steps and goals of the analytics workflow, discuss problem structuring, and its importance
- Apply basic criteria to judge the quality of data-related questions
- Explore Excel both as software (basic layout, navigation, keyboard shortcuts, worksheet organization) and as a data analysis platform (basic math/stat formulas, visualization)
- Practice basic summary tactics used to familiarize yourself with a dataset

Readings


[Optional] Reference Readings:


[Optional] Real-world example(s):


Week 2 [February 1, 2023] – IN-PERSON CLASS: Formulate, clean, and manipulate data in Excel.

Topics

- Intro to data cleaning
- Describe the relationship between functions and parameters
- Use nested functions

Readings


[Optional]


[Optional] Real-world example(s):

- “Vital Signs: Pregnancy-Related Deaths, United States, 2011–2015, and Strategies for Prevention, 13 States, 2013–2017”, by Emily E. Petersen, MD; Nicole L. Davis, PhD; David Goodman, PhD; Shanna Cox, MSPH; Nikki Mayes; Emily Johnston, MPH; Carla Syverson, MSN; Kristi Seed; Carrie K. Shapiro-Mendoza, PhD; William M. Callaghan, MD; Wanda Barfield, MD, Morbidity and Mortality Weekly Report, May 10, 2019.
- Pregnancy Mortality Surveillance System, CDC.

Week 3 [February 8, 2023] – IN-PERSON CLASS: Dynamic data referencing and dashboard creation.

Topics

- Learn how to look up data in other tables using VLOOKUP and HLOOKUP
- Use data functions [INDEX and MATCH] to lookup values in other tables
- Use these Excel functions to create a simple dashboard in Excel

Readings

● “You Don’t Have to Be a Data Scientist to Fill This Must-Have Analytics Role,” by Nicolaus Henke, Jordan Levine, and Paul McInerney, Harvard Business Review, February 8, 2018.

[Optional] Real-world example(s):

- Study on the Evolution of the UN Support Account for Peacekeeping Operations


Topics

- Learn about data aggregation using Pivot Tables
- Use excel aggregation commands to summarize data sets
- Learn to use histograms, scatterplots, and trend analysis to analyze data

Readings


[Optional]

- “An Overview of Data Management,” The American Institute of Certified Public Accountants (AICPA), Information Management and Technology Assurance Section.

[Optional] Real-world example(s):

- From Compstat to Gov 2.0 Big Data in New York City Management - either PDF (available on Brightspace Resources folder) or online format

Week 5 [February 22, 2023] – IN-PERSON CLASS: Presentation, storytelling, data visualization, and color theory.

Topics

- Translate problem structuring into storytelling for persuasion
- Determine how to pick the right chart types for effective data visualization
Apply color theory to ensure effective data visualization

Introduction to Tableau

Readings


[Optional] Reference Readings:

[Optional] Real-world example(s):
- “How healthy is your neighborhood for your child? Take a look”, by Sandee LaMotte, CNN, January 22, 2020
- Policy Equity Assessments: http://www.diversitydatakids.org/policy-equity-assessments


Topics

- Create a variety of charts in Tableau
- Create a dashboard in Tableau with a variety of chart types
- Build Stories and explore Tableau’s power for narrative presentation

Readings:

[Optional]
Cindi Howson, James Richardson, Rita Sallam, Austin Kronz, Magic Quadrant for Business Intelligence and Analytics Platforms, Gartner Research, 11 February 2019.

[Optional] Real-world example(s):
See example visualizations in Tableau Public.
Week 7 [March 8, 2023] – IN-PERSON CLASS: Class assessment and more Tableau visualizations

Final project is due March 12, 2023 by midnight

Sample Source Readings

Readings drawn from academic & business journals and news sources will also be used to encourage in class discussion, illustrate principles, and facilitate learning. Examples include:

- Use of Tableau Public to share student results data and other publicly available data sets
- Use of Gap Minder to show how human development has changed over time
- Growth in the use of technology in governance and politics e.g. Civic Tech: TechPresident
- Including the ability to discern and critically assess those presenting data: FiveThirtyEight; New York Times: TheUpshot

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.
NYU’s Wellness Exchange

NYU’s Wellness Exchange has extensive student health and mental health resources. A private hotline (212-443-9999) is available 24/7 that connects students with a professional who can help them address day-to-day challenges and other health-related concerns.