

PADM-GP 4119

Data Visualization and Storytelling Fall 2024

# Instructor Information

* Rashida Kamal
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* **Oice Hours**: Sign up via my oice hour blocks on my [Calendly.](https://calendly.com/rsk333-nyu/wagner-office-hours) We will meet over Zoom. Timing varies from week to week, so this link will be your best bet for the most up-to-date availability. Please do not sign up for multiple oice hours in a row, or book out sessions more than two weeks in advance.

# Course Information

* **Class Meeting Dates and Times**: Wednesdays, 6:45–8:25 pm
  + 09/04/2024
  + 09/11/2024
  + 09/18/2024
  + 09/25/2024
  + 10/02/2024
  + 10/09/2024
  + 10/16/2024
* **Class Location**: 70 Washington Sq S (Bobst) Room LL146

# Recitation

* [Jugal Pumbhadia](mailto:jp6988@nyu.edu)
* **Email**: [jp6988@nyu.edu](mailto:jp6988@nyu.edu)
* **Office Hours**: Mondays, 2-3pm. Sign up here: <https://calendly.com/jugal45/dataviz_oa>.
* **Meeting Times**: 8:35 – 9:35 PM after class dates
* **Location**: Same as class

# Course Prerequisites

* + Introduction to Statistics

# Course Description

In our increasingly data-reliant and data-saturated society, people who understand how to leverage data to generate insights have the power to change the world. Data visualization and storytelling is a crucial skill for policy and data analysts, communications and marketing professionals, and managers and decision-makers within nonproﬁts, social organizations, and the government. With the advent of visualization tools that do not require coding, data storytelling in the digital age is also an attainable skill set for people with varying levels of technical ability.

This hands-on introductory course will teach students how to develop meaningful data stories that reveal visual insights accessible for relevant audiences. Students will also learn the basics of Tableau, the industry standard in data visualization tools, to make sense of and visualize publicly available data. Students will leave the course with a portfolio of data visualization projects, analog and digital, that demonstrate the application of data storytelling. This course is intended for a beginner in data visualization and storytelling. *Students with extensive prior experience should consult the instructor before enrolling.*

# Course and Learning Objectives

By the end of the course, students should be able to:

1. Evaluate and critique data visualizations to become better consumers of data.
2. Gain experience with presenting data insights through visualizations.
3. Understand and apply data visualization and storytelling best practices to communicate accessible and meaningful insights.
4. Develop meaningful data stories, gaining experience with the iterative process of data storytelling.
5. Construct captivating and engaging visualizations, dashboards, and stories in Tableau.

**Learning Assessment Table**

|  |  |
| --- | --- |
| **Graded Assignment** | **Course Objective Covered** |
| Participation | All |
| Lab Sessions | #1, #3 and #5 |
| Data Viz Critique | #1 and #2 |
| Analog Data Viz Project | #3 and #4 |
| Final Viz Project | #1, #3, #4 and #5 |

# Class Policies

**This is a fast-paced, hands-on course with a lot of material condensed into seven weeks.**

Students should be mindful of the following expectations to ensure that they are beneﬁtting from the sessions and achieving intended learning objectives:

* Attendance for the entire class session for all seven sessions is mandatory. Students should not register for the class if they anticipate any conﬂicts.
* Active engagement during the sessions is essential. This course is designed to be a largely practice-based course. Students will maximize class learning if they come prepared having completed their assigned reading and training materials, developed a basic knowledge and theory of the weekly session topic, and are ready to engage during the course discussions, labs, and recitations.
* Deeper engagement with the content outside of the class sessions will be needed to ensure students are able to complete assignments and projects successfully. Due to the condensed nature of the course, students will need to put in additional time outside of class sessions and should plan accordingly.

**You are permitted to use generative AI tools in your written assignments, as long as you disclose the tool you used and any related prompts (including system prompts or other customization).**

Please note that the onus for ensuring quality and accuracy of any output from a genAI model is entirely up to you –– you are ultimately held responsible for what you submit as your work in this class. Your work – especially your written work – must utilize the vocabulary and conceptual material that we introduce in lecture.

# Required Materials

**Readings:** There is no textbook requirement for this class. Required readings will come from noteworthy articles, blogs and book excerpts; all materials are available online via hyperlinks on this syllabus or on our class [Google Drive](https://drive.google.com/drive/folders/1-m-AV0rSxguwC357zgDJUFs15sTgYu5C?usp=drive_link).

**Software:** To ensure successful lab/recitation participation, students are required to:

* Have downloaded a Tableau Desktop license on your laptop (students are eligible for a [free one-year license](https://www.tableau.com/academic/students#form)).
* Ensure you have Microsoft Excel or Numbers on your laptop.

# Course Components

## Readings

This course is designed to be a largely practice-based course. Therefore, it is crucial to come prepared to class with the basic knowledge and theory needed to have interactive discussions and a hands-on lab. (See Detailed Course Overview for more information for each week.) All materials are available online via hyperlinks on this syllabus or on our class [Google Drive](https://drive.google.com/drive/folders/1-m-AV0rSxguwC357zgDJUFs15sTgYu5C?usp=drive_link). Students must read assigned chapters/articles *before* coming to the respective session.

## Orienting Discussions

Most course sessions will begin with a brief orienting discussion to recap best practices and lessons on data visualization and storytelling. Each discussion will build on the assigned reading material for that week and should be an opportunity to deepen knowledge and clarify questions.

## Labs and Recitations

Most course sessions will include an experiential lab session. Students will also have an opportunity to hone their Tableau skills during a hands-on recitation immediately following each course session. To ensure successful lab/recitation participation, students are required to:

* With the exception of Week 1, please complete all readings, pre-work assignments, and deliverables *before* class.
* Ensure you have downloaded a Tableau Desktop license on your laptop (students are eligible for a [free one-year license](https://www.tableau.com/academic/students#form)).
* Ensure you have Microsoft Excel on their laptop.

## Assignments

Assignments are formative, intended to help students understand data viz tools and best practices. They consist of completion of lab-related deliverables, writing a data viz and dataset critique blog, and storyboarding the ﬁnal project. Details on each assignment will be provided in the previous class session.

## Projects

Unlike the formative assignments, projects are intended to assess mastery over data viz content and skills. Evaluation information can be found under Assessment Assignments and Evaluation. Projects will be uploaded via the blog tool on NYU Brightspace.

1. Analog Data Viz Project

Students will create and present an analog “data postcard” by collecting and hand drawing data they collect over the course of several days/a week (see the [Dear Data project](http://www.dear-data.com/theproject/) for more information/ideas). This project is intended to reinforce the importance of communicating data insights effectively and creatively irrespective of the medium/tool. As students will not be using Tableau, students should be especially mindful about visualization execution (i.e., best practices on chart types, color schemes, legends, so on). You will still be expected to submit your data analysis in Excel in addition to your analog data viz.

1. Individual Final Project

All students must create a data story using Tableau that demonstrates their data visualization and

storytelling skills through the course. While students are given free rein on content and execution, all data stories must contain three visualizations using Tableau Story Points. Data stories must also serve one of two goals: to help the intended audience make data-driven decisions or to convey meaningful impact information to an intended audience. An accompanying blog post should brieﬂy contextualize the data story and explain how it achieves one of the two intended goals. Students will learn more about the ﬁnal project during Week 4. See an example completed Tableau data story [here](https://public.tableau.com/profile/julia.boyaval%23!/vizhome/JB_FinalDataViz_10_21_20/ExploringNYCsMichelinStarRestaurants), click [here](https://public.tableau.com/profile/trish.malubay%23!/vizhome/MalubayFP_FinalProject/Story) for an exceptionally creative ﬁnal project submission.

To ensure that students are on track with their ﬁnal project, the following completion deliverables will be enforced:

* + **Week 05**: Finalize ﬁnal project topic and data set; bring storyboard idea (we will do a storyboarding workshop during the class session).
  + **Week 06**: Come to class with a rough Tableau workbook of your ﬁnal project (there will be an opportunity to ask questions during class), and a Miro board of your storyboard.
  + **Week 07**: Final projects due.

# Assessment Assignments and Evaluation

## Participation (15%):

Students are required to attend all class sessions and come prepared for and actively participate in class. All students will begin with the full 15 points. If students miss class or are unprepared for a class session, a maximum of 3 points will be deducted each session. Given the remote nature of this semester, active participation will include asking/answering questions during the session (including in chat) as well as contributing to discussion in breakout groups. Please contact the instructor if any issues arise during the semester.

Participation in recitation sessions is strongly encouraged and will help students develop their Tableau skills, but will not be counted toward your Participation grade. However, hands-on exercises in recitations 2 and 4 count toward Tableau lab assignments and should be completed/submitted in NYU Brightspace, regardless of recitation attendance.

## Homework Assignments (30%):

Assignments will be split into three components:

* + Tableau lab worksheets/workbooks (10%) – Graded on a 100-point scale based on completion.
  + Data viz critique blog post (10%) – Graded on a 100-point scale based on completeness and demonstrated understanding (see rubric on page 7).
  + Final project draft (10%) – Graded on a 100-point scale based on completion.

All homework assignments should be submitted via NYU Brightspace by the beginning of class on the speciﬁed due date. Late assignments will have 10 points deducted for every day it is late (even if submitted the same day but after class, 10 points will be deducted). If you receive a zero on a homework assignment, you can resubmit one homework assignment per semester for a maximum of 50% the total value of the assignment.

## Analog Data Viz Project (25%):

The project will be evaluated on two components: completion of the project, including a presentation during class (10%) and the analog data viz (90%). The data viz evaluation rubric can be found on page 8. The presentation should explain the data story in a compelling, clear, and effective manner (pass/fail component based on completion). Be sure to share your data ﬁle in addition to the viz. Students will have 2 minutes to present their data story to the class (no slides). Make sure to share details on your process in addition to the image of your analog data viz during your presentation.

## Final Project (30%):

The ﬁnal project will be evaluated on two components: the data viz (90%) and the orienting blog post and presentation (10%). The data viz evaluation rubric can be found on page 9. The blog post should explain the data story in a compelling, clear, and effective manner (pass/fail component based on completion). Detailed instructions will be in our class [Google Drive](https://drive.google.com/drive/folders/1-m-AV0rSxguwC357zgDJUFs15sTgYu5C?usp=drive_link).

## DATA CRITIQUE GRADING RUBRIC

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CRITERIA**  ***Students are expected to:*** | **0 points** | **20 points** | **30 points** | **50 points** |
| **Complete all parts of the Data Critique Assignment**  Select an appropriate data story, submit the written critique and dataset evaluations by the due date, come prepared to present their critique. | Student does *not* complete the Data Critique Assignment as assigned. | Student completes all parts of the  assignment in a timely manner. |  |  |
| **Submit a written critique that demonstrates a clear understanding of the Trifecta framework**  Must be three to ﬁve paragraphs. Include at least one or two elements that may be missing from the data story.Explain how you would improve the data story (be speciﬁc). | Student does *not* submit a written critique. | Student completes *some* aspects of the written critique. Student demonstrates *a developing* understanding of the Trifecta framework.  Student does *not* include any missing elements. Student does *not* include how they would improve the data story. | Student completes all aspects of the written critique. Student demonstrates *moderate* understanding of the Trifecta framework.  Student includes *some*  missing elements. Student includes mention of how they would improve the data story but does *not* specify. | Student completes all aspects of the written critique.  Student demonstrates *a superior and thorough* understanding of the Trifecta framework.  Student includes one to two missing elements. Student includes speciﬁc examples of how they would improve the data story. |
| **Submit a written evaluation of the limitations of two found datasets.**  Select two tabular datasets from Data Is Plural and evaluate limits and possibilities of the dataset for storytelling. Include 1-2 paragraphs for each dataset. | Student does *not* submit a written evaluation. | Student completes some aspects of the written evaluation. The student is able to describe the datasets, but stops short of critical engagement. | Student completes all aspects of the written evaluation examining two found datasets. The student is able to describe the data and data types found in the datasets and evaluate its limitations. |  |

## ANALOG DATA VIZ PROJECTS GRADING RUBRIC

NOTE: Instructor reserves the right to grade in partial increments when needed (e.g., a student satisﬁes some, but not all, of the criteria in a given category)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CRITERIA** | **0 points** | **5 points** | **10 points** | **20 points** | **30 points** |
| **Complete all parts of the project** (e.g. data collection & analysis, submission of a data viz by due date, presentation) | Student does *not* complete the Data Viz Project as assigned | Student completes *some* parts of the project | Student completes all of the project components in a timely manner |  |  |
| **Follow basic visualization fundamentals and best practices to demonstrate applied learning**  (e.g. suitable chart type, proper axes and labels, visual cues like headers, directions, color choice, etc.) | Student does *not* submit a data visual. |  | Student demonstrates a *developing* understanding of data visualization best practices.  Data viz fundamentals have not been followed. | Student demonstrates a *moderate* understanding of data visualization best practices.  *Some* data viz fundamentals have been followed but there is room for improvement. | Student demonstrates a *superior and thorough* understanding of data visualization best practices.  Data viz fundamentals have been followed to convey a meaningful story. |
| **Create a visualization that demonstrates creativity, attention to detail and design, and an understanding of Shaffer’s 4Cs** (i.e. clean, clear, concise, captivating) | Student does *not* submit a data visual. |  | Multiple aspects of the 4Cs are *missing*, or have not been well addressed in the visualization.  Visualization does *not* demonstrate thoughtful planning.  Visualization appears *sloppy* and may be diicult to understand as a coherent whole.  Multiple issues with positioning or other distracting characteristics. | Aspects of the 4Cs are apparent; opportunity exists for *further* enhancement.  Visualization shows thought and planning, and most aspects work in harmony. May exhibit *minor issues* with alignment or sizing mismatching with importance. | The 4Cs are *well*  represented.  Visualization demonstrates thoughtful planning.  Color choices are conscious and consistent. Choice of position, size, and other emphasis elements clarify and/or enhance the viz to create a *visually appealing* and engaging whole. |
| **Demonstrate a clear POV that allows the intended audience to arrive at a quick, fact-based conclusion.** | Student does *not* submit a data visual. |  | The visualization suggests some possibilities, but does *not lead to clarity* of understanding or action.  *Diicult* to understand how interpret the data and how it applies to the thesis of the analysis. | There is a clear message conveyed, but the action or conclusion that should be drawn is *less clear.*  *Study* is required to interpret the data and how it applies to the thesis of the analysis. | The visualization is *targeted* to the audience, the POV is *evident*, and the conclusion or action is *clear.*  The visualization facilitates *quick* cognition and leading to a  fact-based conclusion or assertion. |

## FINAL PROJECT GRADING RUBRIC

NOTE: Instructor reserves the right to grade in partial increments when needed (e.g., a student satisﬁes some, but not all, of the criteria in a given category)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CRITERIA** | **0 points** | **5 points** | **10 points** | **20 points** | **30 points** |
| **Complete all parts of the Data Viz Project** (e.g. data collection and analysis submission of data story and blog post by due date, presentation) | Student does *not* complete the Data Viz Project as assigned | Student completes *some* parts of the projects | Student completes all of the project components in a timely manner. |  |  |
| **Follow basic visualization fundamentals and best practices to demonstrate applied learning**  (e.g. suitable chart type, proper axes and labels, visual cues like headers, directions, color choice, etc.) | Student does *not*  submit a data story. |  | Student demonstrates a *developing* understanding of data visualization best practices.  Data viz fundamentals have not been followed. | Student demonstrates a *moderate* understanding of data visualization best practices.  *Some* data viz fundamentals have been followed but there is room for improvement. | Student demonstrates a *superior and thorough* understanding of data visualization best practices.  Data viz fundamentals have been followed to convey a meaningful visual story. |
| **Create a story that demonstrates creativity, attention to detail and design, and an understanding of Shaffer’s 4Cs** (i.e. clean, clear, concise, captivating) | Student does *not*  submit a data story. |  | Multiple aspects of the 4Cs are *missing*, or have not been well addressed in the visualization.  Visualizations appear *sloppy* and may be diicult to understand as a coherent whole. Multiple issues with font consistency, positioning, or other distracting characteristics. | Aspects of the 4Cs are apparent; opportunity exists for *further* enhancement.  Visualizations show thought and planning, and most aspects work in harmony. May exhibit *minor issues* with alignment/ sizing mismatching with importance. | The 4Cs are *well* represented; the visualization is clear, clean, concise, and captivating.  Color and font choices are conscious and consistent; choice of position, size, and emphasis integrate elements into a *visually appealing* and engaging story. |
| **Convey a narrative/POV that allows the intended audience to arrive at a quick, fact-based conclusion.** | Student does *not* submit a data story. |  | The story suggests some possibilities, but does *not lead to clarity* of understanding or action  *Diicult* to understand how to interpret the data and how it applies to the thesis of the analysis. | There is a clear message or story conveyed, but the action or conclusion that should be drawn is *less clear*  *Study* is required to interpret the data and how it applies to the thesis of the analysis. | The story is *targeted* to the audience, the POV is *evident*, and the conclusion or action is *clear*  The visualization facilitates *quick* cognition and leads to a fact-based conclusion or assertion. |

## Letter Grades

Letter grades for the entire course will be assigned as follows:

|  |  |  |
| --- | --- | --- |
| **Letter Grade** | **Points** | **NYU Brightspace Scale (out of 100)** |
| **A** | 4.0 points | 95 – 100 |
| **A-** | 3.7 points | 90 – 94 |
| **B+** | 3.3 points | 87 – 89 |
| **B** | 3.0 points | 83 – 86 |
| **B-** | 2.7 points | 80 – 82 |
| **C+** | 2.3 points | 77 – 79 |
| **C** | 2.0 points | 73 – 76 |
| **C-** | 1.7 points | 70 – 72 |
| **F** | 0.0 points |  |

### Student grades will be assigned according to the following criteria:

(A) Excellent: Exceptional work for a graduate student. Work at this level is unusually thorough, well-reasoned, creative, methodologically sophisticated, and well written. Work is of exceptional, professional quality.

(A-) Very good: Very strong work for a graduate student. Work at this level shows signs of creativity, is thorough and well-reasoned, indicates strong understanding of appropriate methodological or analytical approaches, and meets professional standards.

(B+) Good: Sound work for a graduate student; well-reasoned and thorough, methodologically sound. This is the graduate student grade that indicates the student has fully accomplished the basic objectives of the course.

(B) Adequate: Competent work for a graduate student even though some weaknesses are evident. Demonstrates competency in the key course objectives but shows some indication that understanding of some important issues is less than complete. Methodological or analytical approaches used are adequate but student has not been thorough or has shown other weaknesses or limitations.

(B-) Borderline: Weak work for a graduate student; meets the minimal expectations for a graduate student in the course. Understanding of salient issues is somewhat incomplete. Methodological or analytical work performed in the course is minimally adequate. Overall performance, if consistent in graduate courses, would not suice to sustain graduate status in “good standing.”

(C/-/+) Deﬁcient: Inadequate work for a graduate student; does not meet the minimal expectations for a graduate student in the course. Work is inadequately developed or ﬂawed by numerous errors and misunderstanding of important issues. Methodological or analytical work performed is weak and fails to demonstrate knowledge or technical competence expected of graduate students.

(F) Fail: Work fails to meet even minimal expectations for course credit for a graduate student. Performance has been consistently weak in methodology and understanding, with serious limits in many areas. Weaknesses or limits are pervasive.

# Detailed Course Overview

Please note that some of the readings and assignments below will be available to you on our class [Google](https://drive.google.com/drive/folders/1-m-AV0rSxguwC357zgDJUFs15sTgYu5C?usp=drive_link) [Drive](https://drive.google.com/drive/folders/1-m-AV0rSxguwC357zgDJUFs15sTgYu5C?usp=drive_link). If you don’t see a link to a speciﬁc item, please check out the Drive.

## WEEK 1

### Date: September 04, 2024

Class Topics:

* The case for data visualization and storytelling
* Data visualization and storytelling details and best practices
* Why we critique & practice critique

Recitation topics:

* Getting setup and oriented to Tableau + homework best practices

#### Class Preparation – for the ﬁrst week, please complete as much as possible by September 08:

Readings Due:

* + Dykes, Brent. [“Data Storytelling: The Essential Data Science Skill Everyone Needs.”](https://www.forbes.com/sites/brentdykes/2016/03/31/data-storytelling-the-essential-data-science-skill-everyone-needs/#7948b07552ad)
  + Shaffer, Jeffrey A. “The Shaffer 4 C’s of Data Visualization.” *Data + Science.* [Google Drive]
  + Shaffer, Jeffrey A. “The Shaffer 4 C’s of Data Visualization: Clean Examples.”

*Data + Science.* [Google Drive]

Lab Assignment/Materials:

* + - Please watch the following videos under the [Getting Started](https://www.tableau.com/learn/tutorials/on-demand/getting-started?playlist=509087) accordion:
      * Getting Started (this features Web Authoring, but still a good basis for orientation to Tableau Desktop as the layout is quite similar).
      * Connecting to Data (same as above)
      * The Workspace Area (Tableau Desktop speciﬁc)
    - Complete the **Lab 1 Student Handout** alongside viewing this training [Google Drive]
    - Sample - Superstore.xlsx [Google Drive]

Deliverable:

* + - Submit completed **Lab 1 Student Handout** in NYU Brightspace by **Sunday, Sept. 08**.

**Materials Used In-Class**: Recitation:

* + - Lab 1 Student Handout document [Google Drive]

## WEEK 2

### Date: September 11, 2024

Class Topics:

* The what, why, and how of critiquing data stories
* How to evaluate a dataset
* Introduction of data critique assignment and the analog data viz project
* Choosing the right visuals in Tableau (Lab Session)

Recitation Topics:

* Hands-on Exercise (Flights)
* Review of Data Prep homework

**Pre-Class Preparation:**

Readings Due:

* + Kofman, Ava. [What’s Polluting the Air? Not Even the EPA Can Say.](https://www.propublica.org/article/whats-polluting-the-air-not-even-the-epa-can-say) (ProPublica)
  + Onuoha, Mimi. [When Proof Is Not Enough.](https://fivethirtyeight.com/features/when-proof-is-not-enough/) (FiveThirtyEight)
  + Fung, Kaiser. [“Junk Charts Trifecta Checkup: The Deﬁnitive Guide”](https://junkcharts.typepad.com/junk_charts/junk-charts-trifecta-checkup-the-definitive-guide.html)
  + Schwabish, Jonathan. [“An Economist’s Guide to Visualizing Data”](https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.28.1.209)
  + Hardin et al. “Which chart or graph is right for you?” (Tableau) [Google Drive]

Lab Pre-Work Assignment/Materials:

* + Complete Data Prep Handout [Google Drive]
  + Download Data Prep – Flights.xlsx [Google Drive]
  + Please watch the following videos under the [Getting Started](https://www.tableau.com/learn/tutorials/on-demand/getting-started?playlist=509087) accordion:
    - Map: Proﬁt Ratio by Geography
    - Area Charts: Sales by Category; Sales by Segment
    - Bar Chart: Proﬁt Ratio by City
    - Building a Dashboard
  + Please watch: [Connecting to Data: Relationships](https://www.tableau.com/learn/tutorials/on-demand/relationships?playlist=509089)

Deliverables:

* + Submit completed Data Prep homework in NYU Brightspace before class start.

#### Materials Used In-Class:

Lab Materials During Class:

* + Global Superstore.xlsx [Google Drive]

Recitation:

* + Hands-On Exercise: Using Tableau for Data Driven Decision making [Google Drive]

## WEEK 3

### Date: September 18, 2024

Class Topics:

* Data critiques – breakout group presentations

Recitation Topics:

* Advanced maps in Tableau
* Introduction to calculated ﬁelds and dashboarding in Tableau

#### Pre-Class Preparation:

Readings Due:

* + D'Ignazio, Catherine & Klein, Lauren F. *Data Feminism*, “The Numbers Don’t Speak for Themselves.” [Google Drive]
  + Tufte, Edward. *The Visual Display of Quantitative Information*, “Graphical Integrity” [Google Drive]
  + Bloomberg. [Taylor Swift Hits Billionaire Status](https://www.bloomberg.com/graphics/2023-taylor-swift-net-worth-billionaire/?accessToken=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzb3VyY2UiOiJTdWJzY3JpYmVyR2lmdGVkQXJ0aWNsZSIsImlhdCI6MTcyNTMyODI0NSwiZXhwIjoxNzI1OTMzMDQ1LCJhcnRpY2xlSWQiOiJTMzVNRDFEV1JHRzAwMSIsImJjb25uZWN0SWQiOiJFNkM0NUQzNThDMTU0RTI5OENCM0JGNzU1QUI1MzIyMCJ9.RCcHI2itorLFBAxnEVfNYoeQoUc8qYiQUzh2pEQN6pU). (If you have trouble accessing this gift link, please email me).
  + Home Oice Digital. [Design for Accessibility](https://github.com/UKHomeOffice/posters/blob/master/accessibility/dos-donts/posters_en-UK/accessibility-posters-set.pdf)
  + National Neighborhood Indicators Project. [Data Visualization: Tips and Practice.](https://docs.google.com/presentation/d/1EfRaUbGRbLa_EkgZnuZB1O8KNn2NgSlLVHqbGGP7ll0/edit#slide%3Did.p1) Focus on Slides 4-7.
  + Visit [Dear-Data.com](http://www.dear-data.com/theproject/) and [Dear-Data-Two.com](http://www.dear-data-two.com/) Lab Pre-Work Assignment/Materials:

Please note that with the exception of the ﬁrst video, these are older deprecated videos, but I still

ﬁnd them useful for our purposes.

* + [Getting Started with Calculations](https://www.tableau.com/learn/tutorials/on-demand/getting-started-calculations?playlist=509091)
  + [Using the Filter Shelf](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-528028)
  + [Interactive Filters](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-528033)
  + [Calculation Syntax](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-528001)
  + [Getting Started with Dashboards and Stories](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-527961)
  + [Story Points](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-528019) (This is an essential watch for your ﬁnal project).

Deliverable:

* + Upload data critique assignment in NYU Brightspace
  + Add your name and a link to data story + datasets you critiqued to [this document](https://docs.google.com/document/d/1Nu_RIsIaong7ocf7KZKmznJ7aMKPu1sWvLcC4k0p16s/edit?usp=drive_link)
  + Submit completed Hands-on Exercise from Recitation 2 in NYU Brightspace before class start

#### Materials Used In-Class:

Lab Materials During Class:

* + - Resolved Incidents.xlsx [Google Drive]

Recitation:

* + - Sample Superstore.xlsx [Google Drive]
    - Recitation Handout [Google Drive]

### WEEK 4

#### Date: September 25, 2024

Class Topics:

* Analog project presentations
* Introduction of ﬁnal projects
* Tableau Review/Q&A (Lab Session)

Recitation Topics:

* Final Projects: Review of Data Sources, Preparation and Analysis, Import and Blending

#### Pre-Class Preparation:

Readings Due:

* + Kazakova, Elena V. [The Psychology behind Data Visualization Techniques](https://towardsdatascience.com/the-psychology-behind-data-visualization-techniques-68ef12865720).

Lab Pre-Work Assignment/Materials:

* + N/A – work on analog data viz projects!

Deliverable:

* + Upload analog data viz project in NYU Brightspace before class start
  + Add your analog data viz project as a single slide in [this slide deck](https://docs.google.com/presentation/d/1apr3X043nFYCmDA2NEwB_qQlUUv_olbwm2bWNPmTxok/edit?usp=drive_link) before the start of class

Materials Used In-Class:

Lab Materials During Class:

* Review of prior materials

Recitation:

* Bring your ﬁnal project topic and dataset ideas

### WEEK 5

#### Date: October 02, 2024

Class Topics:

* + Data storytelling in real world – breakout group discussion
  + Final Projects Storyboarding Workshop (Lab Session)
    - Start your Miro boards!

Recitation Topics:

* Hands-on Exercise (Tableau Dashboarding)

#### Pre-Class Preparation:

Readings Due:

* + Ryan, Lindy. “Storyboarding Frame-by-Frame” in *Visual Data Storytelling with Tableau*. Boston, MA: Pearson Education, 2018. [Google Drive]
    - Pay particular attention to pages 176-178
  + Nussbaum, Cole. [“#SWDchallenge: sticky notes.”](http://www.storytellingwithdata.com/blog/2018/11/1/swdchallenge-sticky-notes) *Storytelling with Data* (blog), November 1, 2018.
  + Nussbaum, Cole. [“how i storyboard.”](http://www.storytellingwithdata.com/blog/2015/8/24/how-i-storyboard) *Storytelling with Data* (blog), August 25, 2015.
  + Review/skim these examples below. (If you have an example you'd like to share, please do!) Be prepared to walk through these and compare the different data storytelling and visualization techniques used:
* [UN Sustainable Development Goals](https://unstats.un.org/sdgs/report/2024/) (skim the PDF report and review the interactive Storymap by clicking on the individual SDG icons)
* [Girls Who Code 2023 Annual Report](https://girlswhocode.com/2023report/)
* [Tableau Foundation Living Annual Report](https://www.tableau.com/solutions/gallery/tableau-foundation-living-annual-report)

Lab Pre-Work Assignment/Materials:

* + Rewatch [Story Points](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-528019) (This is a helpful watch for your ﬁnal project draft).
  + Work on your ﬁnal projects!

Deliverable:

* Finalize ﬁnal project topic and dataset and bring storyboard idea to class/recitation.

#### Materials Used In-Class:

Lab Materials During Class:

* Bring your ﬁnal project topic, dataset, and storyboard idea for session

Recitation:

Hands-on Exercise (Tableau Dashboarding)

## WEEK 6

### Date: October 09, 2024

Class Topics:

* Final Projects Q&A
* Partnered check-ins of Miro ﬁnal project storyboards

Recitation Topics:

* Open Oice Hours for Tableau Questions

#### Pre-Class Preparation:

Readings Due:

* + Few, Stephen. [Common Pitfalls in Dashboard Design](https://www.perceptualedge.com/articles/Whitepapers/Common_Pitfalls.pdf). Boise, ID: ProClarity, 2006.
  + Review [Makeover Monday](https://www.makeovermonday.co.uk/) for live in-class challenge Accessed June 7, 2020 **(Read the home page, and then review examples in the gallery and community)**
    - Related YouTube Channel**:** <https://www.youtube.com/andykriebel>
  + Refresh: Ryan, Lindy. “Storyboarding Frame-by-Frame” in *Visual Data Storytelling with Tableau*. Boston, MA: Pearson Education, 2018. [Google Drive]
    - Pay particular attention to pages 176-178

Lab Pre-Work Assignment/Materials:

* + Rewatch [Story Points](https://www.tableau.com/learn/training/pre-2021.1-tableau-free-training-videos#reveal-528019) (This is a helpful watch for your ﬁnal project submission).
  + Focus on ﬁnal projects!

Deliverable:

* + Submit completed Hands-on Exercise from Recitation 5 in NYU Brightspace before the start of class.
  + Submit your draft ﬁnal project Tableau workbook. Make sure you have **at least 2 draft story points** and notes about what data/graphs you are thinking about using to tell the story.
  + Submit a link to your Miro final project storyboard.
  + Bring ﬁnal project questions to class and recitation.

#### Materials Used In-Class:

Recitation:

* Bring your own Tableau workbooks and come with questions!
* Miro board with your ﬁnal project storyboard

### WEEK 7

#### Date: October 16, 2024

Class Topics:

* Final project presentations
* Course key takeaways and reﬂections
* Data viz tools beyond Tableau

Recitation Topics:

#### \*\* No recitation but longer class time to accommodate ﬁnal presentations\*\* Pre-Class Preparation:

Readings Due:

* N/A

Lab Pre-Work Assignment/Materials:

* N/A

#### Final Deliverables:

* Oral presentation of your Tableau Public data story in class.
* Submission of all ﬁnal project materials in NYU Brightspace. Please make sure you have included your Tableau workbook as a .TWBX ﬁle, your written analysis of your work (the “blog post”) and a link to your Tableau Public presentation.
* Please place a link to your Tableau Public project [in this document](https://docs.google.com/document/d/197EyC8rTHRhRP_GhUyhhtNpB7ZEaURm9jXHZ80mYwsk/edit?usp=sharing) before the start of class.

# Student Resources

NYU Data Services has an entire [collection of resources on Tableau](https://guides.nyu.edu/viz/tableau) as well as offers [in-person](https://guides.nyu.edu/c.php?g=463475&amp%3Bp=3167995) [consultations](https://guides.nyu.edu/c.php?g=463475&amp%3Bp=3167995) for NYU students. Also, NYU students have free access to [LinkedIn Learning](https://www.nyu.edu/employees/career-development/professional-development.html) (new login home on right-hand paneof online talks and data courses on data visualization.l) which offers a warehouse

There are countless blogs on data visualization online that can serve as helpful references. Here are a few to get started:

* + [Tableau Public](https://public.tableau.com/en-us/s/blog)
  + [Storytelling with Data](http://www.storytellingwithdata.com/) by Cole Nussbaumer
  + [FlowingData](https://flowingdata.com/) by Nathan Yau
  + [Information is Beautiful](https://informationisbeautiful.net/) by David McCandless
  + [PolicyViz](https://policyviz.com/) (Check out the podcast) by Jonathan Schwabish
  + [Junk Charts](http://junkcharts.typepad.com/junk_charts/) by Kaiser Fung
  + [Data Therapy](https://datatherapy.org/about/) by Rahul Bhargava

Select data sources that can potentially be used for the ﬁnal project:

* + [Data Is Plural](https://www.data-is-plural.com/archive/)
  + [NYC OpenData](https://opendata.cityofnewyork.us/data/)
  + [U.S. Census Data](https://www.census.gov/data.html)
  + [Data.gov](https://www.data.gov/)

Supplementary Resources

* + Edward Segel and Jeffrey Heer, [“Narrative Visualization: Telling Stories with Data”](http://vis.stanford.edu/files/2010-Narrative-InfoVis.pdf)
  + Tableau Webinar, [“How to Design Engaging Data Stories in Tableau: 7 Starter Story Types”](https://www.youtube.com/watch?v=HsxkEdhlJlg&amp%3Bindex=23&amp%3Blist=PL_qx68DwhYA_YyQc2qleHp6nl4K5PB-Pb)

# NYU Brightspace and Course Communication

This is a living syllabus and may change throughout the semester. All changes will be communicated via announcements through NYU Brightspace. Students should ensure they are receiving notiﬁcation emails when new announcements are posted.

Lecture slides and completed lab ﬁles will be uploaded after each class to our class [Google Drive](https://drive.google.com/drive/folders/1-m-AV0rSxguwC357zgDJUFs15sTgYu5C?usp=drive_link) for each respective week.

Students should feel free to email me with any questions and expect a response within 48 hours. Students should be mindful that this is not my full-time job; responses during business hours will likely be limited.

# Technology Support

Students have 24/7 support to NYU’s IT services. Explore the [NYU servicelin](https://nyu.service-now.com/servicelink/search_results.do?sysparm_search=student%2Bguides&x=0&y=0&sysparm_fa&sysparm_sp&sysparm_cat&sysparm_serv&sysparm_location=24e7c87598a074004c8c03063d84e2a6&sysparm_role&sysparm_base)k [knowledge](https://nyu.service-now.com/servicelink/search_results.do?sysparm_search=student%2Bguides&x=0&y=0&sysparm_fa&sysparm_sp&sysparm_cat&sysparm_serv&sysparm_location=24e7c87598a074004c8c03063d84e2a6&sysparm_role&sysparm_base) [base](https://nyu.service-now.com/servicelink/search_results.do?sysparm_search=student%2Bguides&x=0&y=0&sysparm_fa&sysparm_sp&sysparm_cat&sysparm_serv&sysparm_location=24e7c87598a074004c8c03063d84e2a6&sysparm_role&sysparm_base) for troubleshooting and student guides for all NYU-supported tools (like NYU Brightspace, Zoom, etc). Contact [askIT@nyu.edu](mailto:askIT@nyu.edu) or 1-212-998-3333 (24/7) for technology assistance, or you may contact [Zoom’s 24/7 technical support](https://support.zoom.us/hc/en-us/articles/201362003) (this includes a chat function), or review [Zoom’s support resources](https://support.zoom.us/hc/en-us/categories/200101697-Getting-Started). Don’t forget, your peers are another source of support. You could ask a friend or classmate for help or tips.

If you do not have the appropriate hardware technology nor ﬁnancial resources to purchase the technology, consider applying for the NYU [Emergency Relief Grant.](https://www.nyu.edu/admissions/financial-aid-and-scholarships/covid-relief-grant.html)

# 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](https://wagner.nyu.edu/portal/students/policies/code). All Wagner students have already read and signed the [Wagner Academic Oath](https://wagner.nyu.edu/portal/students/policies/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](https://www.nyu.edu/students/communities-and-groups/students-with-disabilities.html) [Center for Students with Disabilities (CSD) website](https://www.nyu.edu/students/communities-and-groups/students-with-disabilities.html) and click on the Reasonable Accommodations and How to Register tab or call or email CSD at (212-998-4980 or [mosescsd@nyu.edu](mailto: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](https://www.nyu.edu/about/policies-guidelines-compliance/policies-and-guidelines/university-calendar-policy-on-religious-holidays.html) 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.