

Visualization and Design: Fundamentals

- CUNY Graduate Center | Summer 2019
- 5/29 - 6/24 | 6:00 to 8:00 | Mondays & Wednesdays in-class AND 5/30 in-class
- Graduate Center, Room 7395
- Michelle McSweeney (mmcsweeney@gc.cuny.edu)
- Office Hours By Appointment
- <https://dhum73000.commonsgc.cuny.edu>

Description

As employers in every sector continue to search for candidates that can turn their data into actionable information, this course is designed to demystify data analysis by approaching it visually. Using Tableau Software, we will build a series of interactive visualizations that combine data and logic with storytelling and design. We will dive into cleaning and structuring unruly data sets, identifying which chart types work best for different types of data, and unpacking the tactics behind effective visual communication. With an eye towards critical evaluation of both data and method, projects and discussion will be geared towards humanities and social science research. Regardless of your academic concentration, you will walk away from this class with a portfolio of dynamic dashboards and a new interdisciplinary skill set ready to leverage in your academic and professional work.

Objectives

By the end of this class, you will be able to:

- Build interactive data visualization dashboards that answer a clear and purposeful research question
- Choose which chart type works best for different types of data
- Iterate with fluidity in Tableau Software leveraging visualization, aesthetic, and user interface best practices
- Structure thoughtful critiques and communicate technical questions and solutions
- Leverage collaborative tools, including Tableau Public, the CUNY Academic Commons, and repositories of public data sets
- Contribute to the broader conversation about digital practices in academic research
- Critically read a wide range of chart types with an eye for accuracy, audience, and effectiveness

- Identify potential weaknesses in the collection methods and structure of underlying data sets
- Locate the original source of a visualization and its data

Assignments

During this course, you will complete four assignments: 2 guided projects and a final portfolio accompanied by a white paper. You will likely turn in each project before you feel fully ready to do so. You will have the opportunity to submit revisions of the first two blog projects until you're satisfied with the outcome.

Blog Post 1

20% Final Grade | Guidelines

One visualization built with New York City's 311 data

Blog Post 2

20% Final Grade | Guidelines

One visualization with a quantified self data set you've created

Final Portfolio

30% Final Grade | Guidelines

A series of three visualizations answering an independent research question using a data set of your choice

White Paper

10% Final Grade | Guidelines

A 1,500-4,000 word final reflection on data, visualization, and iteration

In-Class Reflections

10% Final Grade | Participation in the in-class reflections and critiques

Tableau Tutorials

10% Final Grade | Completion of Tableau tutorials

Schedule

Because this is a Summer Session course, we will cover a lot of ground in just four weeks. *Both* classroom attendance and the online tutorials are essential for understanding the material and doing well in the course. The seminar will focus on a theoretical component underpinning data visualization. The tutorials will cover essential tools and techniques in Tableau. The Tableaus tutorials will be delivered in video format, and By the end of this course, you will have developed a deep understanding of the context around data visualization and how to effectively and ethically engage in visual communication.

Week 1 | Introduction to Tableau and Data Visualization

Class Time

Date	Seminar	Reading
Wed, May 29	Introductions, Goals, Structuring Research Questions for Data Visualization	Yau 2013 Chapter 1 Data Points <i>Suggested:</i> Friendly, 2007 A Brief History of Data Visualization
Thurs May 30	Principles of Data Visualization, NYC 311 Data	Yau 2013, Chapter 3 of <i>Data Points</i> Nussbaumer Knaflig 2015. Chapter 2, <i>Storytelling With Data: Choosing and Effective Visual</i>

Online

Lab	Tutorial
0	Setup & Install Tableau, Sign up for CUNY Academic Commons
1	Data Prep - Cleaning Google Sheets data

Lab	Tutorial
2	Simple Restaurant Visualization: Scatter Plots, Maps, Pie Charts, Bar Charts, Tool Tips
3	Dashboard Preparation
4	311 Data Setup: Downloading, Exploring, and Wrangling

Assignments

Date	Time	Deadline	Platform
May 29	6:00 PM	Sign up for Tableau & Commons	NA
May 30	6:00 PM	Cleaning, Simple Viz, First Dashboard (0-3)	Tableau Public & Email
May 31	6:00 PM	Submit Proposal for Blog Post 1 (4)	Email
June 3	5:00 PM	Publish Blog Post 1	Tableau Public & Commons

Week 2 | Data Integrity and Data Structures

Class Time

Date	Seminar	Reading
Mon,	Pin-Up	Viegas & Wattenberg 2015 Design and Redesign in Data Visualization
June	Blog-	<i>Optional: Tufte 1997 The Decision to Launch</i>
3	Post 1, Quantified Self	<i>the Space Shuttle Challenger in Visual and Statistical Thinking</i>
		Giorgia Lupi Dear Data TED Talk
		Gitelman, 2013 “Raw Data” Is An Oxymoron
Wed,	Data &	Drucker 2015 Humanities Approach to Graphical Design
June	Data	
5	Manipulation	Posner, 2016 What’s Next: The Radical, Unrealized Potential of Digital Humanities
		<i>Optional: Lupi, 2017. Data Humanism</i>

Online

Session	Tutorial
3	Data Structure, Data Joins

Session	Tutorial
4	Calculated Fields, Dashboard Design

Assignments

Date	Time	Deadline	Platform
June 5	5:00 PM	Data Joins	Tableau Public & Email
June 7	6:00 PM	Calculated Fields	Tableau Public & Email
June 7	6:00 PM	Proposal for Blog Post 2	Email
June 10	5:00 PM	Publish Blog Post 2	Tableau Public & Commons

Week 3 | Advanced Chart Types

Class Time

Date	Seminar	Reading
Mon, June 10	Pin-Up Blog- Post 2, Maps	Solnit, 2016 Nonstop Metropolis (2 pieces in Zotero Library)
Wed, June 12	Text	Drucker 2015 Humanities Approach to Graphical Design Posner, 2016 What's Next: The Radical, Unrealized Potential of Digital Humanities <i>Optional:</i> Lupi, 2017. Data Humanism

Online

Session	Tutorial
5	Thematic Maps & Tree Maps

Session	Tutorial
6	Dispersion Plots & Word Clouds

Assignments

Date	Time	Deadline	Platform
June 12	5:00 PM	Thematic Maps & Tree Maps	Tableau Public & Email
June 14	6:00 PM	Dispersion Plots & Word Clouds	Tableau Public & Email
June 14	6:00 PM	Proposal for Final Project	Email
June 17	5:00 PM	Final Project Draft	Tableau Public & Commons

Week 4 | Communicating with Data

Class Time

Date	Seminar	Reading
Mon, June 17	Pin- Up Project Draft	Knigge & Cope 2006 Grounded visualization: integrating the analysis of qualitative and quantitative data through grounded theory and visualization
		Grounded Visualization Tufte - Chapter 2 - Graphical Integrity
Wed, June 19	Storytelling Tech Support	McCandless TED Talk <i>Suggested</i> Andrew Stanton TED Talk: The Clues to a Great Story

Online

Session	Tutorial
7	Bullet Graph, Bump Chart, Donut Chart, Slope Chart (pick one)

Assignments

Date	Time	Description	Platform
June 19	5:00 PM	Advanced Visual	Tableau Public & Email
June 21	6:00 PM	Dispersion Plots & Word Clouds	Tableau Public & Email
June 24	5:00 PM	Final Project Edits	Tableau Public & Commons

Week 5 | Final Review

Date	Seminar	Reading
Mon, June 24	Final Review	

Assignments

Date	Time	Description	Platform
June 26	6:00 PM	White Paper	Commons

Disability Services | Health & Wellness | Library | Ombuds | Policies & Procedures
| Professional Development