

## VISUALIZATION AND DESIGN: FUNDAMENTALS

- CUNY Graduate Center | Fall 2019
- 6:30 to 8:30pm | Thursdays
- Graduate Center, Room 3702
- 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, 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

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### ASSIGNMENTS

During this course, you will complete four assignments: 2 guided projects and a final portfolio accompanied by a white paper. We expect that you will 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 & PRESENTATION*

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

This is a hybrid studio-seminar format. The seminar will focus on a theoretical component underpinning data visualization. The tutorials will cover essential tools and techniques in Tableau. The Studio is found in the iterative nature of your projects, the monthly pin-ups, and the weekly critiques.

The Tableau tutorials will be delivered in video format, and can be completed in any order, though they do correspond to the weekly sessions. They are due in batches, reflected in the syllabus. Every week, the last 20 minutes of class will be devoted to critiquing a professionally made visualization. You will get the most out of that session if you have reviewed it before class begins. After you complete each project, you will have the opportunity to present it to the class. There will be no critique on pinup days. The purpose

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of the pinups is to both practice giving and receiving feedback and it is an opportunity for the author to develop their project further.

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.

## Course Calendar

This schedule is subject to change.

Date	Topics & Readings	Labs & Visualizations
8/29	<p>Introduction &amp; Course Goals</p> <p><i>Suggested: Friendly, 2007 <a href="#">A Brief History of Data Visualization</a></i></p>	<p>Tableau Set Up (0) Setup</p>
9/5	<p>CUNY MONDAY</p>	
9/12	<p>Structuring Research Questions for Data Visualization</p> <p><i>Yau 2013 <a href="#">Chapter 1 Data Points</a></i></p>	<p>(1) Google Sheets Data Prep (2) Simple Restaurant Visualization (3) Setting Up a dashboard</p>
9/19	<p>Data Viz Types: The Basics</p> <p><i>Yau 2013, Chapter 3 of <a href="#">Data Points</a></i> <i>Nussbaumer Knaflic 2015. Chapter 2, <a href="#">Storytelling With Data: Choosing and Effective Visual</a></i></p> <p><b>Blog Post 1 PROPOSAL Due (9/22, 6am)</b></p>	<p>(4) 311 Data Download</p>
9/26	<p><b>Blog Post 1 Due 6pm</b></p> <p><b>Pin Up #1</b></p> <p><i>Viegas &amp; Wattenberg 2015 <a href="#">Design and Redesign in Data Visualization</a></i> <i>Optional: Tufte 1997 <a href="#">The Decision to Launch the Space Shuttle Challenger in Visual and Statistical Thinking</a></i></p>	<p>LABS 0-4 DUE</p>
10/3	<p>Quantified Self</p> <p><i><a href="#">Giorgia Lupi Dear Data TED Talk</a></i></p> <p><i>Lupi &amp; Posavec Dear Data (this is not a reading, per se, but please interact with some of the visuals)</i></p>	<p>(5) Data Structures (6) Data joins (7) Calculated Fields</p>

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	<a href="#">A year in Numbers</a>	
10/10	LAB CLASS - ONLINE	(8) Dashboard Design Part I: The visualizations (9) The Dashboards
10/17	Data & Data Manipulation  <i>Gitelman, 2013: "Raw Data is an Oxymoron" Introduction</i>  <a href="#">Wang, 2013 Thick Data Medium post</a>  <b>Blog Post 2 PROPOSAL Due (10/20, 6am)</b>	LABS 5-9 DUE
10/24	<b>Blog Post 2 Due 6pm</b>  <b>Pin Up #2</b>	
10/31	Text as Data  <i>Schulz 2011 NYTimes Book Review of Graphs, Maps, and Trees &amp; Moretti 2007</i>	(10) Text Analysis (11) Mapping
11/7	LAB CLASS - ONLINE	(12) Parts of a Whole  OR  (13) Progressions through Time
11/14	Spatial Analysis & Grounded Visualization  <i>Solnit, 2016 Nonstop Metropolis</i>  <i>Knigge &amp; Cope 2006 Grounded visualization: integrating the analysis of qualitative and quantitative data through grounded theory and visualization</i>	LABS 10-11 & 12 OR 13 DUE
11/21	Narrative & Storytelling  <a href="#">McCandless TED Talk</a>  <i>Suggested Andrew Stanton <a href="#">TED Talk: The Clues to a Great Story</a></i>  <b>Blog Post 3 PROPOSAL Due (11/24, 6am)</b>	

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11/28	HAPPY THANKSGIVING	
12/5	<b>Blog Post 3 Due (12/4, 6pm)</b> <b>Pin Up #3</b>	
12/12	PRESENTATIONS	
12/15	WHITE PAPERS & Final Portfolios DUE	

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## *Additional Information*

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