Visualization and Design: Fundamentals

- CUNY Graduate Center | Summer 2018
- Course Number DHUM 73000
- Monday - Thursday 6:00 to 8:00 | 5/29 - 6/21 | Graduate Center, Room 7395
- Taught by: Erin Daugherty (erin@datadozen.com) and Michelle McSweeney (mam2518@columbia.edu)
- Office Hours: By Appointment

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, Github, 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. 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

25% Final Grade | Guidelines

One visualization built with New York City's 311 data

Blog Post 2

25% Final Grade | Guidelines

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

Final Portfolio

40% 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

Schedule

Because this is a Summer Session course, we will cover a lot of ground in just four weeks. Attendance is essential for understanding the material and doing well in the course. Each class

period will be divided into two parts: a seminar and a hands-on practicum. The seminar will focus on a theoretical component underpinning data visualization, and the second half will be a hands-on tutorial in Tableau. By the end of this course, you will have developed a deep understanding of the context around data visualization and how to ethically engage in visual communication.

Week 1 | Introduction to Tableau and Github

Class Time

Date	Seminar	Reading	Tableau Tutorial
Tuesday, May 29	Introductions, Goals, and Tech Set Up	None Required. *Suggested*: Friendly, 2007 A Brief History of Data Visualization	Creating Data, Connecting to Data, Bar Chart
Wednesday, May 30	Structuring Research Questions for Data Visualization	Yau 2013 Chapter 1 Data Points	Text Table, Map, Tooltips, Dashboard Design
Thursday, May 31	Principles of Data Visualization	Yau 2013, Chapter 3 of *Data Points* Nussbaumer Knaflic 2015. Chapter 2, *Storytelling With Data: Choosing and Effective Visual*	Exploring a New Data Set, Line Chart, Heatmap

Assignment Deadlines

Date	Time	Deadline	Platform
Friday, June 1	6:00 PM	Submit Proposal for Blog Post 1	Email
Sunday, June 3	Midnight	Publish Blog Post 1	Tableau Public & Github

Week 2 | Data Integrity and Data Structures

Class Time

Date	Seminar	Reading	Tableau Tutorial
Monday, June 4	Blog Post 1 Pin Up	Viegas & Wattenberg 2015 Design and Redesign in Data Visualization *Optional: Tufte 1997 The Decision to Launch the Space Shuttle Challenger in Visual and Statistical Thinking*	Data Structure
Tuesday, June 5	*Explore Projects for Class:* Dear Data 1 & Dear Data 2	Giorgia Lupi Dear Data TED Talk Gitelman, 2013 ["Raw Data" Is An Oxymoron LINK BROKEN]()	Data Joins
Wednesday, June 6	Personal Data	Posner, 2016 What's Next: The Radical, Unrealized Potential of Digital Humanities	Calculated Fields
Thursday, June 7	*Bring 3 Examples to Class:* Data Visualizations in the Media	Drucker 2015 Humanities Approach to Graphical Design	Parameters

Assignment Deadlines

Date	Time	Deadline	Platform
Friday, June 8	6:00 PM	Submit Proposal for Blog Post 2	Email
Sunday, June 10	Midnight	Publish Blog Post 2	Tableau Public & Github

Week 3 | Advanced Chart Types

Class Time

Date	Seminar	Reading	Tableau Tutorial
Monday, June 11	Blog Post 2 Pin Up	Solnit, 2016 Nonstop Metropolis	Treemaps
Tuesday, June 12	Distant Reading	Schulz 2011 NYTimes Book Review of Graphs, Maps, and Trees & Moretti 2007 [Graphs, Maps, and Trees LINK BROKEN]()	Dispersion Plots
Wednesday, June 13	Maps as Visualizations	Tufte - Chapter 2	Area Charts, Bullet Graphs
Thursday, June 14	Grounded Theory and Visualization	Knigge & Cope 2006 Grounded visualization: integrating the analysis of qualitative and quantitative data through grounded theory and visualization	Bump Chart, Donut Chart

Assignment Deadlines

Date	Time	Deadline	Platform
Friday, June 15	6:00 PM	Submit Proposal for Final Portfolio	Email
Sunday, June 17	Midnight	Publish Draft of Final Portfolio	Your Choice

Week 4 | Communicating with Data

Class Time

Date	Seminar	Reading	Tableau Tutorial
Monday,	Draft of Portfolio Pin	McCandless TED	Presenting with

Monday, June 18	Draft of Portfolio Pin Up ; Storytelling	McCandless TED Talk	Presenting with Storypoints
Tuesday, June 19	Future of Visualization	No Reading - work on Project	Dashboard Makeovers
Wednesday, June 20	Presentations of Final Portfolios	n/a	n/a
Thursday, June 21	Presentations of Final Portfolios	n/a	n/a

Assignment Deadlines

Date	Time	Deadline	Platform
Sunday, June 24	Midnight	Submit All Final Changes to Final Portfolio	Your Choice
Sunday, June 24	Midnight	Publish Your White Paper	Github

Progress, Not Perfection

Finally, we want to clearly state that our goal for this course is to expose you to a broad range of technologies and techniques. The schedule above is intentionally designed to move faster than the typical class. We're striving for progress, not perfection. You will experiment with technologies that might feel overwhelming and you will turn in assignments before they feel done. This is how iterative, creative processes work. We're confident that by the end of this course, no matter how many confusing or frustrating moments you've navigated throughout, that you will look back at where you started four weeks ago and be impressed by the ground you've covered. We're here to help you get the most out of this course. Let us know how we can help you succeed!

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

Syllabus written by Erin Daugherty and Michelle McSweeney, for *Visualization and Design: Fundamentals*, a course in the M.A. in Digital Humanities at the Graduate Center at CUNY. More information about the program is available here.