ARTG6900 Data Visualization Workshop
Instructor Siqi Zhu
Class 1:35PM — 5:05PM   Fri   Ryder Hall 301

Description

This course builds on the foundational skills acquired in ARTG5330 Visualization Technologies, and introduces students to intermediate- to advanced-level topics in web-based interactive visualization. The emphasis of the course is on building greater technical proficiency in working with d3 and other JavaScript libraries, as well as acquiring skills in solving data visualization problems in a self-directed way. Through lectures, workshops, and a final project, students will learn to explore, understand, and communicate data in an effective, critical, and productive way.

Objectives

This course aims to help students consolidate and expand their knowledge of d3 and other programming skills necessary for more complex data visualizations. The technical topics covered in this class will include:

- Advanced d3 patterns (rendering, interaction, data manipulation);
- Front-end JavaScript development;
- How to effectively manage and manipulate large data sets.

More broadly, this course also aims to help students better understand the theoretical underpinning of data visualization practice. By gaining stronger intuitions about the appropriate uses (and potential abuses) of data visualization patterns, students will learn to apply them proficiently as an exploratory tool and expressive medium to a wide variety of datasets.

Tool Requirements

The tools required for this class are consistent with those for ARTG5330 (WebStorm or Sublime; Git; and Python).

Overview of Format

This course will consist of lectures and workshops. Lectures will focus on introducing new concepts and techniques, while workshops will allow students to implement these concepts and techniques in the context of their own projects under instructor supervision. In the last month of the semester, workshops will be devoted to individual critique and group pin-ups. Final review will take place on April 21.

The ultimate outcome of this class will be a self-directed data visualization project. Students

will undertake the final project in groups of two, to be assigned at the instructor's discretion. For the final project, students can work with an assigned dataset or a different one contingent on instructor approval.

Course Resources

Course website: http://www.medium.com/NEU-IDV-ARTG

One-stop location for lecture slides, assignments, readings, and other content. Supplementary material marked "Important" is essential information for the class, and should be reviewed carefully.

Course Github Account: viztech

Repository for all code used in class and for assignments.

Slack Channel: https://northeasternidv.slack.com

Useful for virtual office hours and group work

Office Hours

Office hour will be available on Slack (or in person as needed) on Wednesdays, unless otherwise rescheduled.

Rules and Regulation

Attendance: You are expected to attend every class; missed classes will mean that you will miss valuable information. Unexcused absences can affect your grade.

Reading assignments and class activities: There will be regular reading assignments over the course of the semester, made available through the blackboard site. You are expected to actively participate in all activities during class – in order to do that, you need to complete all necessary readings before class.

Assignments: You are expected to keep a research journal of your work and progress throughout the semester, containing the assignments, reading reflections, visualizations and diagrams, a documentation of your project progress and other relevant information.

Integrity: you are requested to abide by Northeastern University's Academic Integrity Policy, which you can read at: http://www.northeastern.edu/osccr/academicintegrity/

Grading and Rubric.

Process and engagement	30%
Assignments	20%
Final project	50%

Weekly Schedule

Week 1 / Jan 13 Course Overview; Review of Key Concepts

Week 2 / Jan 20 Introduction to the Hubway Dataset; Data Discovery

Week 3 / Jan 27 Data Manipulation; Introduction to Crossfilter.js

Week 4 / Feb 3 Writing Modular Code

Week 5 / Feb 10 Workshop: Working with Crossfilter.js; Modular Code

Pin-up

Present data source, research questions

Week 7 / Feb 24 Advanced Interaction Patterns

Week 8 / March 3 Spring Break, No Class

Week 9 / March 10 Workshop: Advanced Interaction Patterns

Pin-up

Present preliminary findings from data discovery process

Week 10 / March 17 Workshop: Advanced Rendering Techniques

Week 11-14 / March 24, 31; April 7, 14: Workshops

Pin-up on March 24

Progress presentation: issues, challenges, solutions

Pin-up on April 1

Progress presentation; design critique

Week 15 / April 21 Final Review