

# **CME151A – Spring 2017**

## **Interactive Data Visualization in D3**

### **Description:**

This four-week short course introduces D3, a powerful tool for creating interactive data visualizations on the web ([d3js.org](http://d3js.org)). The class is geared toward scientists and engineers who want to better communicate their personal projects and research through visualizations on the web. The class will cover the basics of D3: inputting data, creating scales and axes, and adding transitions and interactivity, as well as some of the most used libraries: stack, cluster and force layouts. The class will be based on short workshops and a final project. A background in programming methodology at the level of CS106A is assumed. The course will make use of Javascript, experience is recommended but not necessary.

### **Information:**

Instructor: Sergio Camelo [camelo@stanford.edu](mailto:camelo@stanford.edu)  
Office Hours: Fridays 3pm-5pm Huang Basement

### **Content:**

#### **Week 1: Fundamentals of Web Design**

We will go through the basics of HTML, CSS and Javascript. This week's workshop will focus on designing a personal webpage and hosting it on the Stanford domain.

#### **Week 2: Fundamentals of D3**

We will learn how to read data and draw a simple scatterplot with it. Then we will go through the concepts of scales and axes to set a system of coordinates and input data with it.

#### **Week 3: Transitions, motions and interactivity**

Animating objects, activating elements through the use of clicking and dragging. Exploring the stack, cluster and force layouts.

#### **Week 4: Additional Topics and Final Project**

We might explore geomapping, map layouts, and hopefully other topics, depending on interests. Students will work on their final project.

### **Workshops:**

There will be 3 workshops corresponding to the first 3 weeks of class. Workshops should be completed by the Monday night of the following week and should be done individually.

## **Final Project:**

Students should submit a project proposal by the end of Week 3 (April 28<sup>th</sup>). This can be done in groups of 1-3 people and should include 1-2 paragraphs of the visualization problem that you plan to address. The final project should be online by the night of May 8<sup>th</sup>.

## **Assessment:**

The final assessment will be Credit/No Credit.

- 3 Workshops: 60%
- Final Project: 40%

## **Books:**

We will follow Scott Murray's Interactive Data Visualization for the Web. A free online version can be found here <http://chimera.labs.oreilly.com/books/12300000000345/>