Data-driven Web Applications
INFO 3300; CS 3300; INFO 5100

Instructor: Prof. Jeff Rzeszotarski, jeffrz [at] cornell.edu
Time & Location: M/W/F 11:15-12:05 in Klarman KG70
Course Prerequisites: CS 2110 & INFO 2300 (or prof. permission)

Course Website: https://jeffrz.com/info3300/
Course Policy Document: https://jeffrz.com/info3300/policies.pdf
Course Announcements Q&A: https://campuswire.com/c/GF8A0A226/
Assignment Submission: Canvas (https://canvas.cornell.edu/courses/10131/)

Graduate TAs: Ian Anders Arawjo (iaa32 [at] cornell.edu)
Sharifa Sultana (ss3635 [at] cornell.edu)
Swati Mishra (sm2728 [at] cornell.edu)

Course Office Hours: See staff directory pinned on Campuswire
Contact: https://campuswire.com/c/GF8A0A226/feed/1
Prof. Rzeszotarski for course administration
Info3300staff [at] gmail.com for Prof+Grad TAs
Post to Campuswire any content questions

Course Description
The web has become an outstanding environment for telling stories with data. This course will cover technologies for representing, modeling and displaying data in the context of interactive web pages. Practical skills for building web pages will be mixed with data mining algorithms and visualization design theory. We will use the D3 Javascript library to develop both static and dynamic visualizations, learn more about programming in Javascript, and explore web scalable vector graphics (SVG). Through design critique and formal study, we will identify the techniques visualization developers employ to create the “right” visualization for a given use case. This course introduces a number of popular data mining models and algorithms which we will incorporate into web visualizations.
Learning Objectives

- Develop competency in client-side visualization development
- Create static and interactive web visualizations using a visualization library
- Learn trade-offs and best practices for matching data to visual elements
- Get practical experience gathering and visualizing real-world data

Structure

This class contains **lectures** on visualization design concepts (30%) and **live coding demonstrations** (70%). You will complete **10 homework assignments** over the course of the term, which will involve both development and design content. All students will complete **two group projects in randomly assigned teams of 3**. Group projects will have 3 milestones, culminating in an **in-class demo day** where we critique projects as a class in a very large room. There are no assigned readings for this course.

All coding demonstrations will make use of the **course repository** on Github. Before class **prompts** will be posted that scaffold the day’s lesson. You are encouraged to clone the repository on your own computer at the start of class so that you can follow along and take notes. Shortly after the end of class **notes** will be pushed to the repository containing all of the code demonstrated that day.

**Attending class is important to your overall success in the class and is required.** While lecture slides will be posted to the course web site so that students can follow along during lectures, they tend to be spare on text and might be hard to interpret without the context gained from attending class. Similarly, while all code will be published as reference for you throughout the term, it may be hard to parse without attending lectures and following along.

**Students enrolled in INFO5100 will complete a third, more substantial group project.** All others will have a **take-home exam**. There is **no prelim** for this course. **All slides will be removed from the course web site prior to the final examination.** Source code from demonstrations will remain in the repository for the final exam.

Course Attendance & Absences

You are required to attend and participate in lectures. **Attendance will be taken at the start of class using notecards. If you arrive after the attendance activity, your attendance will not be counted for that day.** Attendance will be taken approximately 2 out of every 3 classes (using Python’s `.random()` function).

**Every student will receive 5 excused absences for the semester, no questions asked.** See the policy documents for more details on these procedures.
Assignments & Late Work

Homework will be assigned on Mondays and are generally due at 11:59PM ET on the following Monday. **Late work will receive a 0 (even if it is only 1 second late).** You will use Canvas to submit homework assignments. Projects will be submitted via your group’s shared GitHub repository. See the policy documents for more details.

As the late policy is harsh, **you will receive a total of 2 slip days for use as a deadline extension** with the option to **earn up to 3 more slip days by actively contributing** to the discussion on Campuswire during the term.

Getting Help

Please make use of the following channels of communication:

- The course web site and policy documentation for basic procedures and rules
- Office hours for individual help on assignments (see here for a schedule)
- Posting on the course discussion forum - please search for similar questions before you post a new one
- For personal questions, use the course email info3300staff@gmail.com
- Do not email the TAs or instructor unless they reach out to you directly
- Do not email about late homework or absences

Grading

While in the past attendance has always been integrated into final course grades, this year we will be offering **two grading options.** Your final grade will be computed automatically based on the **better of these two options:**

<table>
<thead>
<tr>
<th></th>
<th>Option A</th>
<th>Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Attendance</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>Weekly Homework</td>
<td>30%</td>
<td>35%</td>
</tr>
<tr>
<td>Project 1</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Project 2</td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td>Project 3 OR Take-home Exam</td>
<td>25%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Letter grades will be assigned using the **integer part of your final %.** For example, 96.01 and 96.99 both resolve to 96%, which would be an A- on the grade scale.
Note that we will be using an adjusted grade point scale for this course. Due to the large amount of extra credit that you can earn, it is entirely possible for your final grade to total higher than 100%.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=100%: A+</td>
<td>80.0%-82.9%: C+</td>
</tr>
<tr>
<td>97.0%-100%: A</td>
<td>77.0%-79.9%: C</td>
</tr>
<tr>
<td>93.0%-96.9%: A-</td>
<td>73.0%-76.9%: C-</td>
</tr>
<tr>
<td>90.0%-92.9%: B+</td>
<td>70.0%-72.9%: D+</td>
</tr>
<tr>
<td>87.0%-89.9%: B</td>
<td>66.0%-69.9%: D</td>
</tr>
<tr>
<td>83.0%-86.9%: B-</td>
<td>60.0%-65.9%: D-</td>
</tr>
</tbody>
</table>

**Extra Credit**

There will be several opportunities for extra credit this term. If 75% of the class completes the mid-semester survey, then the entire class will receive a 0.5% bonus to their grade. Each leftover excused absence at the end of the term will earn 1/3% extra credit, up to a 1% grade bonus. A 0.5% bonus will be offered to students who post a neat visualization example from the web to the “Visualization Examples” tag on Campuswire before Spring Break. Alternatively, you can post an interesting dataset to the “Datasets” tag on Campuswire (no Kaggle or other major data repositories). No duplicates allowed, so do this earlier rather than later. Finally, 2% can be earned via SONA credits (see policy document for more details).

**Academic Integrity**

All students are expected to abide by the University’s [Code of Academic Integrity](#).

**In-class work**

Class will often involve a programming problem that we will work on together. You are allowed to bring a laptop to class, but please sit in the designated laptop area if you choose to use it during lectures. Cell phone use is not permitted. Please do not take photographs or recordings of lecture content without explicit permission. Any technological disruptions will result in loss of attendance for the day.

**Other Course Policies**

For detailed information on course policies, please refer to the [course policy document](#).