CS9223 Information Visualization (Spring 2014)
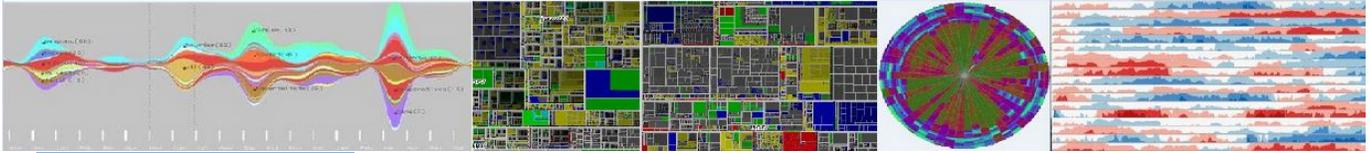

LINKS

Schedule
D3 Tutorial
Grading Policy
Homeworks
Reading Assignments
Projects
Project Proposal
Project Releases
Paper and Video
Submission
Presentation Slides and
Demo Session
Cheating and Plagiarism
Consultation Hours

INSTRUCTOR

Enrico Bertini
2MT 10th floor (CSE)
Room 10.082

TAs
Richard Melendez (D3
Tutorial)
Darshi Shah (Organization)

LECTURES
Thu 6.00-8.30 PM
Room: JAB 775B

D3 TUTORIAL
Thu 4.00-5.30 PM
Room: 2MT 10th floor 10.09
9

Schedule

Note: the schedule is tentative and it may change during the course.

Week	Date	Topic
1	1/30/2014	Visualization: What is it? What is it for?
2	2/6/2014	Basic Charts
3	2/13/2014	CANCELLED (for bad weather)
4	2/20/2014	Beyond Charts: High Information Graphics
5	2/27/2014	Beyond Charts: Interactive Visualization
6	3/6/2014	Visualization Design Process / Design Studies
7	3/13/2014	Student Presentation
8	3/20/2014	SPRING BREAK
9	3/27/2014	Color Maps [Guest Lecture][Bernice Rogowitz]
10	4/3/2014	Data Abstraction

11	4/10/2014	Visual Encoding & Graphical Perception
12	4/17/2014	Networks/Trees [Guest Lecture] [Manuel Lima]
13	4/24/2014	Maps
14	5/1/2014	Time-Oriented Data
15	5/8/2014	Project Posters/Demos

Textbooks

- Book: The Visual Display of Quantitative Information (2nd Edition)
  Author: E.R.Tufte
  Publisher: Graphics Press, Year: 2001
  Link: http://www.amazon.com/gp/product/0961392142

- Book: Visualization Analysis and Design (Book Draft 3)
  Author: Tamara Munzner
  Publisher AK Peters, To appear in 2014
  Link: http://www.cs.ubc.ca/~tmm/courses/533-11/book/

D3 Tutorial

Time and place: The D3 tutorial is given on Thus between 4pm-5:30pm (just before class) and it takes place in the CSE department at 2 MetroTech 10th floor in the "big seminar room".

How the tutorial works: The tutorial is based on the book "Interactive Data Visualization" by Scott Murray. Students are expected to read the assigned chapters before coming to the tutorial following the schedule below. During the tutorial the instructor will guide the students through practical exercises (and environment setup during the first session) and will answer questions on technical issues.

Instructor/TA: The D3 tutorial is taught by Richard Samuels. Students can post questions on our Piazza forum in the D3 folder.

Week	Date (at 4pm)	Topic	Book Chapter
2	2/6/2014	Web design, svn, css, setup, etc.	Ch. 3, 4
3	2/13/2014	Drawing with data	Ch. 5, 6, 7, 8
4	2/20/2014	Interaction	Ch. 9, 10
5	2/27/2014	Multiple views	material given by the instructor

Grading Policy

Final grades are given according to these rules:

Participation (Class participation and Readings)	15%
Homeworks	25%
Projects	50%
Paper Presentations	10%

Homeworks

Homeworks are to be submitted individually. Details about homeworks and instructions for submission are given at the end of each lecture.

Homework Grading Rules: Each homework will be graded as Passed/Not Passed. A homework that is marked as not passed should be resubmitted as per feedback from the instructor.

Late Submission Policy: Unjustified late homework submission will receive a grade of not passed. But submission is MANDATORY. If you do not submit a homework on time/late, further homework's will not be graded.

Reading Assignments

- Each week a reading assignments is given after the class.
- The last slide of the lecture contains citations and links to the assigned papers.
- Students are expected to submit their questions and comments related to reading assignment on Piazza by Tue of the following week by 11:59pm.

Projects

The course requires students to develop a data visualization project by the end of the course. The project entails the development of an interactive visualization to support a well-defined data analysis and presentation problem. Other than being a vehicle to learn technical skills on how to program a visualization the main purpose of the project is to learn how to transform a data set and a set of requirements into an useful interactive analytical tool. The accent is not on the technicalities (even though technical contributions are more than welcome and encouraged) but rather on analytical reasoning and outcome: can you extract interesting and potentially useful information from your data? That's the driving question of a project in this course.

Groups: the project can be assigned to single students as well as groups of maximum two students. In some cases, when requested, groups of three may also be arranged.

Organization: each group has to meet me before a project is assigned. Once a project is assigned each one has to develop a project proposal (details below) and give a presentation in class. The development of the project has to follow the project milestones outlined below.

Project milestones and expected products:

2/21/2014	Meeting with instructor	Project assigned / receive data and contacts from me.
3/12/2014	Project Proposal	Submit your project proposal following the instructions below / create your project wiki page.
3/13/2014	Project Presentation (in class)	Prepare a 5 min project presentation to describe your project in class.
3/25/2014	Alpha Release	Submit an update on your project (details on the logistics will be provided).
4/15/2014	Beta Release	Submit an update on your project (details on the logistics will be provided).
4/28/2014	Pre-Final Release	Submit an update on your project (details on the logistics will be provided).
5/6/2014	Final Release	Submit the final version of your project.
5/8/2014	Presentation Slides + Demo	Prepare slides and a demo to present during our demo session organized at the CSE department.
05/14/2014	Paper + Video Submission	Submit a Paper and Video describing your project

Project Proposal

For the project proposal submit (sending an email to Darshi Shah) a pdf document organized as follows:

1. **Title, authors, contacts**
2. **Problem Description:** describe in concise language what is the problem that you want to solve in your project. In this description you may want to include information about who has this problem, why it is important, why it cannot be solved with current tools and why visualization is needed to solve it.
3. **Data and Tasks:** describe how your data providing details about which data fields will be used in your project and their semantics (what do they mean?). Include also a description of the anticipated processing and transformations you plan to make on this data (do you have any derived data field, aggregation, sampling, etc.?) Important: do not just insert a data table with no comments or descriptions, it is important to describe your data with some good narrative. Include also a preliminary analysis of the tasks you need to support with your tool. The best way to do that is to write a list of analysis questions/tasks you want to support in your project (note that this list may very

well evolve during the course of your project as you learn more about the problem). For guidance on how to describe data and tasks read one or more of the design study papers listed here.

4. **Proposed Solution:** include mockups of your proposed solution describing the visual design and the envisioned interaction. Make sure to describe why you believe your solution is appropriate for the problem you are trying to solve. Include a scenario of use describing how you expect your user to use your tool. For guidance on how to generate tasks and scenarios of use read Lewis and Rieman's Chapter 2 of Task-Centered User Interface Design.

5. **Previous/Related Work:** include information about papers, existing tools or other references that are related to your project. In this phase, it is fine to describe references you will need to search for to inform yourself on some aspects of your work (did anyone solve similar problems before? are there specific techniques you are adopting from other solutions? is there some piece of research you plan to learn more about to inform your design and analysis?)

6. **Evaluation/Validation:** include some text about how you plan to assess whether you have successfully achieved your goal.

For examples of good information visualization projects see Tamara Munzner's selected student projects (at the bottom of the page).

Project Releases

For the project releases you have to submit a short document describing how the project has progressed so far and including screenshots and/or videos showing your tool in action. For the alpha release interaction is not expected yet but it is necessary to show one or more screenshots of your visualization based on the data you are using in your project. Additional meetings will be organized with me to show some demos and to discuss the current state of your project.

Important: for the final release you will have to provide a link to a web page containing a description of your tool, a video of your tool in action and a link to your demo.

Paper and Video Submission

Your final paper has to be written using a format provided in attachment CS9223 InfoVis Final Paper Draft.pdf

Video will basically cover problem, your solution to it, you findings etc

Presentation Slides and Demo Session

The last day of the course I will organize a demo session at the CSE department where all groups will show their results to a group of invited people (students and professors from our department). For the demo session you will have to prepare:

1. Presentation slides summarizing your work
2. A demo to show on your computer to the participants
3. (Optional) a 1-pager that summarizes your project

Cheating and Plagiarism

Plagiarism is defined as "To use and pass off (the ideas or writings of another) as one's own."

The NYU policy on cheating will be followed explicitly. Please refer https://engineering.nyu.edu/academics/code-of-conduct/academic-dishonesty for details.

A student found cheating on an assignment will receive not passed for that homework/reading.

Consultation Hours

On Friday's by prior appointment through email.