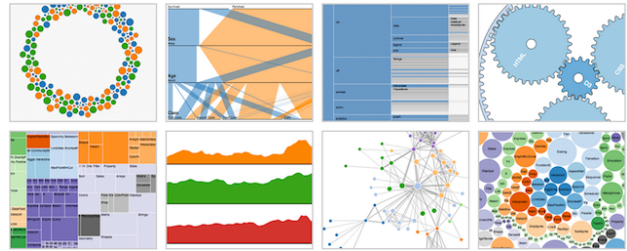


# DATAVIS

CS8803DV/MGT8803DV > Spring17



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WHO	Prof. Rahul C. Basole <a href="mailto:basole@gatech.edu">basole@gatech.edu</a> TSRB 332 Office Hours: By Appointment
WHEN	9:35-10:55 am (Monday/Wednesday)
WHERE	Scheller 202 (Building 172)
COURSE WEBPAGE	<a href="https://datavis17.wordpress.com">https://datavis17.wordpress.com</a> Other resources will be available on T-Square, Piazza, and Tumblr
TAs	Arjun Srinivasan <a href="mailto:arjun010@gatech.edu">arjun010@gatech.edu</a>

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Data visualization is a rich research area that focuses on the design and use of visual representations and interaction techniques to help people understand, explore, and analyze data. While fields such as scientific visualization involve the presentation of data that has some physical or geometric correspondence, data visualization focuses on abstract data without such correspondences such as symbolic, tabular, networked, hierarchical, or textual information sources.

The objectives of this course are:

- Learn fundamental principles of effective data visualization.
- Understand the wide variety of data visualization techniques and know what visualizations are appropriate for various types of data and for different goals.
- Understand how to design and implement data visualizations using commercial and open-source software tools.
- Know how data visualization uses dynamic interaction methods to help users explore, analyze, and make sense of data.
- Gain an understanding of human perceptual and cognitive capabilities to the design of effective data visualizations.
- Develop skills in critiquing different data visualization techniques in the context of user goals and objectives.

The course will follow a lecture/seminar style with discussions, guest speakers from industry and academia, viewing of best-practice videos, and hands-on project experience with data visualization design and development.

## MATERIALS

- Pencil/Eraser
- Set of Colored Pencils (12)
- Ruler
- Blank Paper

## TEXT (optional)

- Stephen Few, *Now You See It: Simple Visualization Techniques for Quantitative Analysis* (2009)
- Tamara Munzer, *Visualization Analysis and Design* (2014)
- Marti Hearst, *Search User Interfaces* (2009)
- Edward Tufte, *The Visual Display of Quantitative Information* (2001)

## SCHEDULE

Note: Please check course website regularly for updates

Class	Date	Day	Topic	Homework	Project Milestones
1	Mon	9-Jan	Introduction		
2	Wed	11-Jan	Overview to DV	HW1: Survey	
3	Mon	16-Jan	<i>No class</i>		
4	Wed	18-Jan	Data and Tables	HW2: DV Examples	
5	Mon	23-Jan	Graphs and Charts		
6	Wed	25-Jan	Multivariate Data		PM1: Elevator Pitch
7	Mon	30-Jan	Visual Perception	HW3: Multivariate	
8	Wed	1-Feb	Temporal & Sequential Data		PM2: Teams
9	Mon	6-Feb	Graph & Network Data	HW4: Timeline	
10	Wed	8-Feb	Hierarchies & Trees		PM3: Description
11	Mon	13-Feb	User Tasks and Analysis	HW5: Network	
12	Wed	15-Feb	Exam 1		
13	Mon	20-Feb	Text and Documents		PM4: Data
14	Wed	22-Feb	DV and Movies (The Oscars Session)		
15	Mon	27-Feb	Storytelling	HW6: Text	
16	Wed	1-Mar	Interaction		PM5: Designs
17	Mon	6-Mar	Design Principles		
18	Wed	8-Mar	Guest: JuiceAnalytics	HW7: Storytelling	PM6: Peer Evaluation
19	Mon	13-Mar	Exam 2		
20	Wed	15-Mar	DV and Sports (The March Madness Session)		PM7: Status
21	Mon	20-Mar	<i>No class</i>		
22	Wed	22-Mar	<i>No class</i>		
23	Mon	27-Mar	Visualization Systems & Toolkits		
24	Wed	29-Mar	Geospatial Data		
25	Mon	3-Apr	Guest: Twitter		
26	Wed	5-Apr	Evaluation	HW8: Geospatial	PM8: Status
27	Mon	10-Apr	Visual Analytics		
28	Wed	12-Apr	Guest: Bloomberg		
29	Mon	17-Apr	Project Day		
30	Wed	19-Apr	Final Project Presentation I		PM9: Demo + Video
31	Mon	24-Apr	Final Project Presentation II		
32	Mon	1-May	Exam (Video Presentations)	1130am-220pm	PM10: Peer Evaluation

## PROJECT (See course website for additional information)

The idea of the project is to take the data visualization knowledge that you are acquiring this semester and use it in a new, creative effort. A real key to a successful project is to select a topic/data that people want to know more about, and that is of interest to your team.

You will form four-person project teams (three people in a few cases). I will facilitate some in-class discussions about project groupings, but you should explore ideas amongst yourselves as well. I want the teams to be balanced in terms of background and experience.

Project Milestones. There are ten (10) project milestones (see *Schedule* for due dates). First, after making your elevator pitch, you must form your team and settle on a topic/data. Second, you will maintain a detailed visualization design portfolio, including design sketches, ideas, data description, tasks and objectives. You will update the instruction team and receive feedback. Finally, you will create a blog/webpage and a narrated video presentation about your data visualization project at the end of the semester. All material needs to be delivered via GitHub.

Evaluation. We will evaluate the overall quality of your project, including all milestones and components. A grading sheet will be provided on the course website. There will also be two peer evaluations (mid-term and at the end of the semester).

## GRADING

Grading will be based on class participation, homework assignments involving design, use, and analysis of information visualization tools, cumulative, exams, and a team-based semester project.

Homework	25 %
Exam 1	20 %
Exam 2	20 %
Project	30 %
Class Participation	5 %

Class Participation. It is expected that students will come to class, be prepared by doing the assigned readings, and will pay attention and participate in discussions and design exercises. Doing all three regularly will earn full credit. If you want to surf the Internet on your laptop in class, take another course. All phones must be turned off. I will cold-call on students!

Late Turn-In of Homework and Project Assignments. For each class period late, 25% of the total grade will be deducted from an assignment's score.

## COLLABORATION AND ACADEMIC HONESTY

Unless explicitly stated otherwise, you are expected to do your homework on your own. Your project work may borrow libraries and code fragments from sources on the web that you integrate into an overall working system. Your source code should indicate what code is imported and used as is, what code is imported and modified, and what code is original. It is appropriate to discuss your project with others to gain ideas and feedback and help with sticky problems. It is not appropriate to find a data visualization, modify it, and submit it as your own work. If in doubt, confer with your instructor.