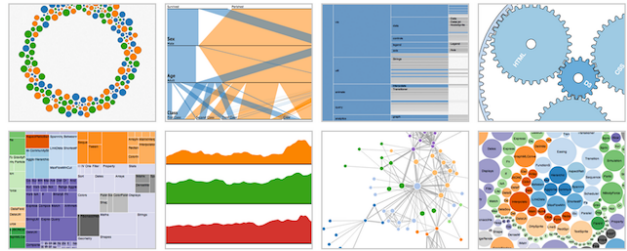


# INFOVIS

CS4460 > Spring16



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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 (T/TH)
WHERE	Van Leer W200
COURSE WEBPAGE	<a href="https://cs4460.wordpress.com/">https://cs4460.wordpress.com/</a> Other resources will be available on T-Square and Piazza
TAs	Trustin Clear <a href="mailto:trustin@gatech.edu">trustin@gatech.edu</a> John Dugan <a href="mailto:jdugan6@gatech.edu">jdugan6@gatech.edu</a> Titus Woo <a href="mailto:tituswoo@gatech.edu">tituswoo@gatech.edu</a>

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Information visualization (InfoVis) 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, InfoVis 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 InfoVis.
- Understand the wide variety of InfoVis and know what visualizations are appropriate for various types of data and for different goals.
- Understand how to design and implement InfoVis.
- Know how InfoVis uses dynamic interaction methods to help users understand data.
- Gain an understanding of human perceptual and cognitive capabilities to the design of InfoVis.
- Develop skills in critiquing different InfoVis techniques in the context of user goals and objectives.
- Learn how to use and critique existing systems for creating InfoVis.

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

TEXT (optional)

- Tamara Munzer, Visualization Analysis and Design (2014)
- Stephen Few, Now You See It: Simple Visualization Techniques for Quantitative Analysis (2009)
- Marti Hearst, Search User Interfaces (2009)

## SCHEDULE

Note: Please check course website regularly for updates

Class	Date	Day	Topic	Homework Due	Project Milestones Due
1	Tue	12-Jan	Introduction		
2	Thu	14-Jan	InfoVis Overview	Survey	
3	Tue	19-Jan	Multivariate Data Visualization	HW1: InfoVis Examples	
4	Thu	21-Jan	Time Data	HW2: Plot.ly	
5	Tue	26-Jan	Graphs & Networks	HW3: Timeline Visualization	
6	Thu	28-Jan	D3 (Lecture + Practicum) – Part I	HW4: Data Source	
7	Tue	2-Feb	PROJECT: Idea + Discussion		PM1: Elevator Pitch
8	Thu	4-Feb	Hierarchies & Trees		PM2: Project Teams and Domain
9	Tue	9-Feb	D3 (Practicum) – Part II	HW5: D3 Assignment (I)	
10	Thu	11-Feb	Interaction, Animation, Transition		PM3: Project Description
11	Tue	16-Feb	Text and Document Visualization	HW6: D3 Assignment (II) HW7: Test Question	
12	Thu	18-Feb	Review for Test 1		
13	Tue	23-Feb	TEST 1		
14	Thu	25-Feb	DOMAIN: Vis and The Movies (Oscars Session)		
15	Tue	1-Mar	InfoVis with Tableau		PM4: Progress Report
16	Thu	3-Mar	Design (Tufte, Few, Wang) + Gestalt Principles		
17	Tue	8-Mar	D3 (Practicum) – Part III	HW8: Tableau	
18	Thu	10-Mar	Visual Perception and Cognitive Processes in InfoVis		PM5: Meet with GTAs to discuss Project Status
19	Tue	15-Mar	Storytelling and Communications (Infographics vs. InfoVis)	HW9: D3 Assignment (III)	
20	Thu	17-Mar	GUEST: Vis @ Twitter DOMAIN: Vis and Sports (March Madness Session)		
21	Tue	22-Mar	<i>Spring Break</i>		
22	Thu	24-Mar	<i>Spring Break</i>		
23	Tue	29-Mar	InfoVis Evaluation		
24	Thu	31-Mar	GUEST: Vis @ Coca-Cola Enterprises		PM6: Demo a partially Working Project to TAs
25	Tue	5-Apr	PROJECT: Work Day	HW10: Test Question	
26	Thu	7-Apr	Review for Test 2		
27	Tue	12-Apr	TEST 2		PM7: System Demo + Final Video Scheduled via Wiki
28	Thu	14-Apr	GUEST: Vis @ Bloomberg		
29	Tue	19-Apr	Project Presentation		PM8: System Demo
30	Thu	21-Apr	Project Presentation		PM8: System Demo
31	Tue	26-Apr	Project Presentation		PM8: System Demo
32	Thu	28-Apr	Reading Day		
					PM9: Code, Video, and Report
	Thu	5-May	Exam Week (Video Presentations)		PM10: Video

## PROJECT (See course website for additional information)

The idea of the project is to take the InfoVis 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 – some from computational media and the people thread, some from the information and other threads, and from outside CoC.

Project Milestones. There are ten project milestones (see *Schedule* for due dates). First, you must form your team and settle on a topic/data. Second, you will submit a detailed design summary about halfway through the term. Third, you will create a narrated video presentation about your visualization project at the end of the semester. Finally, the code for your visualization along with a short report and video will 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 use and analysis of information visualization tools, and a team-based semester project.

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

Class Participation. It is expected that students will come to class, be prepared by doing the readings, and will pay attention and participate in discussions. 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 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 an InfoVis, modify it, and submit it as your own work. If in doubt, confer with your instructor.