

Course Syllabus

Course Information

Course Prefix and Number: CS4460

Course Name: Introduction to Information Visualization

Credit Hours: 3

Instructor: Yang, Yalong

Course Description

Data is everywhere. It helps us to make informed decisions. However, it is always overwhelming to interpret the “raw” data. Visualizations are tools that translate the raw data into meaningful graphics. They take advantage of the powerful human visual system to summarize data in a cognitively efficient way, making them popular in science, analysis, and the media. This course provides an introduction to understand, design, create, and evaluate data visualizations.

Course Learning Outcomes

By enrolling in this course, students will:

- Learn the principles involved in designing effective information visualizations.
- Understand the wide variety of information visualizations and know what visualizations are appropriate for various types of data and for different goals.
- Understand how to design and implement information visualizations.
- Know how information visualizations use dynamic interaction methods to help users understand data.
- Learn to apply an understanding of human perceptual and cognitive capabilities to the design of information visualizations.
- Develop skills in critiquing different visualization techniques in the context of user goals and objectives.
- Learn how to implement compelling information visualizations with web programming (JS, HTML, CSS).

Required Course Materials

No physical textbooks are required. The following books are recommended readings:

- Visualization Analysis and Design, Tamara Munzer, CRC Press 2014, ISBN 9781466508910.

- Interactive Data Visualization for the Web, 2nd Edition, Scott Murray, O'Reilly Media, ISBN 9781491921289.

Purchasing of those books is not required. Digital version can be access through GT Library. Some additional readings will be provided for some classes.

Grading Policy

There are four major components in this course: Homework, Labs, Group Project, and Tests.

- Labs are programing activities and practices with detailed instructions.
- Homework are programing assignments.
- Group project is a semester-long project focusing on building an interactive web story featuring multiple visualizations. Providing an end-to-end experience for students from brainstorming to design, and then to implement and evaluate.
- Mid-term and final tests are close-book exams testing theoretical and practical knowledge about visualization.

Late submissions will be graded down by 10% for each day of delay past the due time starting at 12:00 AM. Late for more than 5 days will be marked as 0.

In group project, multiple check-ins will be arranged to ensure all group members fairly contribute to the project. Insufficient contribution reported by group members will result in deduction in individual grade for the group project.

Attendance Policy

All students are expected to attend all lectures and labs. Attendance check will be randomly conducted in certain weeks, and missing each class will result in 1% deduction in the final grade, without maximum restriction.

Recommended Background

The technical part of course will heavily focus on web programing skills. Students with such experience will find it easier to follow, while students without such experience may need to spend extra effort to catch up. Basic web programing labs will be provided. However, covering every aspect in those labs is not practical. Thus, some additional efforts and self-learning are expected from students without web programing experience. Students have at least proficient in one or multiple programing language will find it generally acceptable to transfer their knowledge to web programing to a certain degree.

Academic and Research Honesty/Integrity Statement

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review the [Student Code of Conduct](#)[Academic Honor Code](#)[Appendix A: Graduate Addendum to the Academic Honor Code](#)

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Allegations of scientific or scholarly misconduct are handled in accordance with the procedures outlined by the. [Policy for Responding to Allegations of Scientific or Other Scholarly Misconduct](#)

AI Policy

Using AI in any step of completing assignments is prohibited unless explicitly state otherwise in the assignments. **Suspicious** cases will be directly reported to [the Office of Student Integrity](#) (OSI). The teaching team will NOT make any judgement but follow the decision from OSI. OSI will initiate a formal investigation to determine if it fall into the use of AI. Possible consequences are available at <https://osi.gatech.edu/process/academic-misconduct-sanctioning-guidelines>.

Core IMPACTS

Not applicable

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs. [contact the Office of Disability Services](#)

Student-Faculty Expectations

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. articulates some basic expectations that you can have of me and that I have of you. Additional information for research-related work is given in . In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class. [The Student-Faculty Expectations](#)[The Expectations of Advisors and Advisees](#)

