

**Information Design and Visualization FNAR-337/637-401** Spring 2016

**David Comberg:** comberg@design.upenn.edu

**Ethan Shou, Teaching Assistant:** yishou@seas.upenn.edu

**Meeting space/time:** MacLab and Fine Arts conference room Tues/Thurs 9-12

**Blog:** datadesign.wordpress.com

This course is an advanced studio that explores the relationship between visual design and the field of information visualization. It presents strategies for designing effective visual communications while seeking to articulate a vocabulary of data design. Course work will provide students with an introduction to structuring and presenting information with an emphasis on meaning, effective communication, and visual aesthetics.

---

**Sample readings:**

*Information Graphics: Visual Tools for Analyzing, Managing, and Communicating*

Robert L. Harris

*Fundamental Principles,*  
Edward Tufte

*Mapping Experience,* Marc  
Treib, Design Quarterly,  
No. 115

*Artistic Data Visualization: Beyond Visual Analytics,*  
Martin Wattenberg, HCII,  
2007

*Elsewhere Mapping,* Janet  
Abrams, Peter Hall

*Graphesis: Visual Forms of Knowledge Production,*  
Harvard, Johanna Drucker

*The purpose of this course is to explore how information can be structured and visualized to create effective communications and to stimulate viewer attention and engagement through design.*

Students must complete three assigned projects and one independent research project using a variety of design tools/media, from static, pencil and paper models, to video, animation, sculptural and interactive web. The focus of the projects will be on developing an analytic and critical design process, demonstrating how design can affect and improve the understanding of information and how data can fuel artistic production. The course is intended for both undergraduate and graduate students in a variety of programs including visual design, engineering, business, and architecture, or any student who works with data presentation.

Students will be expected to complete basic research, data collection, analysis, interpretation, and presentation. They will be required to synthesize information from multiple and varied perspectives and create visual representations for each of the semester's projects. Students will need to choose appropriate media for each project and complete work with a high level of skill, balancing functionality and aesthetics. Studio time will be used for project work, short presentations, discussion, and critiques. Students should plan on spending an additional 6-8 hours per week outside of class.

---

**COURSE REQUIREMENTS**

- attend all classes on time and prepared to work
- complete all assignments fully and on time (submit work to Course Folder/blog on assigned days)
- participate in critiques, explaining and justifying work and offering criticism of other students' work
- contribute to class blog (1-2 post/wk)
- maintain records of design process
- submit final projects by the last day of class/crit date

**GRADUATE STUDENT REQUIREMENT**

Graduate students will be required to participate in a separate mid-point review of their independent project with a panel of faculty and peers. Based on feedback they must complete the work with a documentation of their development process.

**GRADING**

Your grade is based on work produced and participation in class (including critiques and course blog). Projects will be evaluated based on how effectively you complete research, the design development process, and the quality of final design. A successful project is a result of analysis, synthesis, and aesthetics—observation, inquiry, interpretation, and visualization—and will be evaluated by the professor based on presentations in class.

Projects are weighted based on their degree of difficulty: project 1, 15%; projects 2 and 3, 25% each; final project, 35%. Mid-semester meetings will be scheduled with each student to discuss progress.

**LATENESS AND ABSENCE POLICY**

In addition to grading for work completed, students will be assessed on the basis of attendance, preparedness, and participation in class. **Attendance in class is a critically important element of your grade.** Three absences will result in grade drop of one letter grade.

**CODE OF ACADEMIC INTEGRITY**

It is your responsibility to be familiar with the University's Code of Academic Integrity.  
[http://www.upenn.edu/academicintegrity/ai\\_codeofacademicintegrity.html](http://www.upenn.edu/academicintegrity/ai_codeofacademicintegrity.html)

PROJECTS AND READINGS

---

**Introduction:**

100 Arrows  
Remote Associates Test

**Videos:**

Tim Brown: The Powerful  
Link Between Creativity  
and Play

Eames: Powers of 10

---

**Materials**

Sketchbook

---

**Project proposals**

due February 11

---

**March 1:** Visiting Lecturer

Amanda Cox, New York  
Times Graphics Editor

---

**Discussion group leaders**

will be assigned for each  
reading. You should  
give an engaging 15 min  
presentation/summary  
and lead a stimulating  
discussion. Engage your  
audience – E X P A N D !

---

**1** January 19

Autobiographical Vis

---

**2** February 4

Visualizing Van Pelt

---

**3** March 15

Critical Vis

---

**4** March April 12

Research Proj

---

**Take the PennDesign  
Fab Lab Safety Course.**

---

**Lab fees not refunded  
after week two.**

---

**Project 1** (3 weeks) January 14–February 4

**1.1 Class Landscape: Quantify and Correlate** (today)

Work with a partner. Take each other's history (a brief set of factual data) then develop correlations that will both inform and engage your audience. Be creative and find information about your partner that goes beyond the obvious (scars, quirks, collections, habits, etc.)

**1.2 Hello: Autobiographical Data Visualization** (for February 4)

Design and perform a 2-minute spoken and visual presentation about yourself built from personal data and vital statistics. Initial plans/sketches due Jan 21/26.

Design and print an 8.5x11" handout diagram summarizing your presentation (illustration, map, icons, chart, table—minimal text)

Readings (for January 19): *The Fundamental Principles of Analytical Design*, Tufte; *Artistic Data Visualization: Beyond Visual Analytics*, Wattenberg; *How to Make Data Look Sexy*, Wattenberg, Viegas; *Data-Driven Aesthetics*, Hansen; *Bizarre Insights From Big Data*, Quentin Hardy

---

**Project 2 Bigger, Longer, Faster, Hotter: Visions For Change** (3.5 weeks) February 4–March 1

This project requires you to address a significant contemporary issue using data to chronicle change over time. The design must use published data to support your particular view or argument. The goal of the project is to use data to convey a heightened recognition of the issue, to influence and empower users, and to promote engagement and activism.

Readings: *Critical InfoVis: Exploring the Politics of Visualization*, Marian Dörk, et al, 2013; Case Study: *Trail of Silence*, Shakiel Greely, 2014

Mar 1: Visiting Lecturer Amanda Cox, New York Times Graphics Editor/Statistician

---

**Project 3 Visualizing Van Pelt** (4 weeks) March 3–April 7/May 9

Built in 1962, Van Pelt Library has a collection of more than 2.5 million volumes and serves over 1 million visitors annually. With a gross area of 230,000 square feet it is the largest of the 15 university libraries. The Penn Libraries are the 23rd largest system in the country, with 6.5 million volumes, 3 million digital images and 37,000 videos. Each year the library completes over 50 million loans and transactions. In this project you'll work in teams with Penn Libraries' data group to map the lives of the library: how materials circulate, where materials are located, how transactions are completed and other aspects of this dynamic organization.

Readings: *On Mapping*, Peter Hall; *Bubbles, Lines, and String: How Information Visualization Shapes Society*; Peter Hall, *Mapping Experience*, Treib, *Design Quarterly*, No. 115, 1980

Collaborators: Joe Zucca/Andy Sarno, Strategic Initiatives, Penn Library Technology Services

---

**Project 4 Independent Project** (4.5 weeks) April 5–April 26/May 9, noon (final crit)

Project proposals due February 11. Mid-project review, April 19.

Portfolios and final projects due at final critique, May 9.