

# DATA VISUALIZATION

“90% of the data in the world today has been created in the last two years.”

– IBM report on big data

“Graphical excellence is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space.”

– Edward Tufte

“Getting information from a table is like extracting sunlight from a cucumber.”

– Arthur and Henry Farquhar, 1981

## INFO

Instructor	Prof. Jeff Thompson
Email	jeff.thompson@stevens.edu
Office/hours	Morton 208, Tuesdays 2–4pm

Meeting times	Mondays 9am–12.50pm
Location	Morton 203
Class website	<a href="https://github.com/jeffThompson/DataVisualization">https://github.com/jeffThompson/DataVisualization</a>

## COURSE DESCRIPTION

What does a day of flight paths in the US look like? What can we learn about NYC by mapping shadows? How can a Twitter bot help us experience the minute details found in census data? How can data, design, and journalism pair to show racial injustice in America? Data visualization is a complex and varied field, found in a range of disciplines where the methodology ranges from scientific (full of stats and academic papers) to infographics found in newspapers and even fine art that uses data as an input. Our focus this semester will be seeing data as a complicated political and technical material charged with aesthetic potential. We'll explore this idea through creative projects that will ask you to think about how we record and represent the world through data, how we can tell stories with information, and to connect this research and creative work with ideas and issues you are excited and passionate about.

We'll begin by considering what can constitute data and analog ways of presenting it. From there, we'll use Adobe Illustrator for developing print graphics, along with more complex but readily-available tools like Microsoft Excel for manipulating data. In the second half of the semester, we'll work with Processing, a coding platform that will allow us to parse and visualize massive datasets. This class assumes you've never used any of these tools

before, but if you have your experience will allow you to make more complex, exciting projects.

## **ATTENDANCE**

Because this class will cover so much technical material, and because our process of experimentation and critique is collaborative, attendance is mandatory. You are allowed two absences per semester to use at your discretion – each additional absence will result in your final grade being lowered by ½-letter. Late arrivals will be marked tardy, with 3 tardies equaling one absence. The only exception is severe illness – if this is the case, please let me know as soon as possible and provide a doctor's note documenting your illness.

## **HOMEWORK**

Homework in this class is meant to be exploratory, a way to expand on the experiences and ideas in class. I encourage wide-ranging interpretation of assignments: consider ways that you can complete the project that are creatively and intellectually exciting for you, not fulfilling the basic requirements. (That said, some assignments will have restrictions on them – these kinds of constraints can spur creativity, so embrace them!)

Unlike studying for tests, projects require considerable engagement and thoughtful work on your own. All assignments are due by the start of class and should be turned in on Canvas – late projects will be marked down 10 points for each week they are late. Details of projects will be available on the class GitHub page (see link on the first page of this syllabus) including how to turn them in, what's to be included, etc.

You will have 24/7 access to the Lab and Studio, and use of the Fab Lab during open hours for printing and equipment checkout.

## **GRADING**

The goal of all assignments is for you to think and make. Everyone comes from different backgrounds and experience, so I'll be looking for improvement, curiosity, engagement, and a willingness to experiment more than mastery. A grading rubric will be provided with each assignment to help you understand what is expected and how well you did.

To get a C (an average grade) you should:

- Put time into your projects each week
- Complete everything on time
- Participate in critiques and discussions

For a B or an A, you should additionally:

- Take risks and try things enthusiastically
- Be an active and unsolicited participant in critiques and discussions
- Take assignments beyond their minimum requirements

Final grades will be determined as follows:

- Homework: 60%
- Class participation: 25%
- Final project: 15%

## **REQUIRED MATERIALS**

This class requires a few basic supplies. Not having the proper materials for class counts as an absence. Required and suggested readings will be provided as PDFs on GitHub – there is no required textbook.

- Laptop and charger – bring every week! Needs to be capable of running Illustrator, and have reliable internet access (we'll be getting nearly all our data online).
- Microsoft Excel (free from Stevens).
- Adobe Illustrator, either installed on your computer or accessed through the Virtual Learning Environment (VLE).
- Processing, a free coding platform created for artists and designers.
- Notebook or sketchbook and a writing implement. This should be something you're willing to tear pages out of (or be ready to scan and pay to print) since we'll use this for ideation in our projects.
- Printing as needed throughout the semester. Laser prints are available in the Fab Lab during open hours for a small fee, or can be done at FedEx on River Street. We'll do one large-scale printed project, which will be printed on the inkjet printer in the Fab Lab (pricing is \$3.50 per square foot).

## **LEARNING ACCOMMODATIONS**

The goal of this class is for everyone to succeed. Stevens and the VA&T program are dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis. If you have

any questions about learning accommodations, please don't hesitate to talk with me during or outside of class.

## **PRONOUNS**

As this course includes lots of interaction between students, it's important for us to create an environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronouns and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform me of the necessary changes.

## **INCLUSION STATEMENT**

Stevens and the VA&T program believe that diversity and inclusiveness are essential to excellence in academic discourse and creativity. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to me to make alternative arrangements.

## **COURSE CALENDAR**

See the course Github page for the most up-to-date version of the course calendar. Please also note this is subject to change – check Github and your email regularly.