Information Visualization

Section: INFO-658-01   Professor: Nicholas Scott
Semester: Spring 2026   Email: nscott@pratt.edu
Meeting Dates & Times: Wednesdays, 6:30-9:20
Location: Manhattan Campus, Room 606

Course Description

Bulletin Description

This course examines the science, art and practice of information visualization. Emphasis is placed on the ways in which position, shape, size, brightness, color, orientation, texture, and motion influence perception of information and facilitate comprehension and analysis of large and complex bodies of information. Topics include cognition and visual perception; the aesthetics of visual media; techniques for processing and manipulating information for the purpose of visualization; studies of spatial, relational, multivariate, time-series, interactive, and other visual approaches; and methods for evaluating information visualizations.

Course Goals

The aim of this course is to develop advanced data literacy and visualization skills. Over the semester we will explore different visualization techniques, beginning each time with basic concepts, design principles, and data formats. You will put those concepts to use in lab assignments and a final project, receiving and providing peer feedback during in-class reviews.

The goals of this course are to:
- Explore theoretical, practical, and aesthetic perspectives on information visualization
- Examine cognitive and other research relevant to perception and information processing
- Develop familiarity with a wide variety of visual representations, with particular emphasis on selecting appropriate representations based on data and audience
- Build skills in planning, developing, and evaluating information visualization

Student Learning Outcomes

By the end of this course, students will be able to:
1) critically discuss information visualizations in light of current research and practice.
2) make reasonable design choices in the context of various tasks, communications goals, and constraints of data and technology.
3) transform data into meaningful and effective visualizations using current software and tools.

Course Requirements

Sources and Materials

All reading materials for the course will be provided on Canvas. There is no need to purchase a textbook or any supplemental materials. Readings from the e-textbook will be assigned weekly, along with supplemental blogposts, articles, etc.

Textbook:
Wilke, C. O. (2019). *Fundamentals of data visualization: A primer on making informative and compelling figures*. O'Reilly Media, Inc.
- Digital copy: https://clauswilke.com/dataviz/directory-of-visualizations.html

Software:
Software is licensed by Pratt, or offered with free student versions. Please also see Launchpad (one.pratt.edu) for virtual desktop access to a wide range of licensed software.

Assignments

Participation	Lab Reports (2)	Final Project
This course is structured as a seminar and lab. Weekly attendance, prior preparation (e.g. doing the reading), and active participation are expected. Every week, with the exceptions of week 1, weeks where lab reports are due, and our final class, students are expected to contribute a visualization critique in which they find and evaluate a data visualization to the discussion board on Canvas.	Two lab reports will assess your ability to interpret and visualize data. For each assignment you will turn in a post on Canvas. Each report includes: 1) a written narrative that explains your workflow, analyzes the data, and interprets the graphics 2) graphic(s) that you created, designed using relevant best practices Lab Reports are due on weeks 5 and 10. On weeks when assignments are due, you'll present a draft in class (Wednesday) and submit the report on Canvas by the end of the week (Sundays at 11:59pm).	The final project is an independent analysis in which you will be asked to design a methodology and analyze a problem using relevant visualization techniques. The specific format can vary based on your professional goals. We'll work on this throughout the semester, with a series of workshops. The graded components include: 1) an oral presentation (20%, due last day of class) 2) the finished product (80%, due last day of exam week)

Assignment Grading Rubric: https://pratt.instructure.com/courses/46205/rubrics

Assessment & Grading

Your knowledge and skills will be assessed based on two lab reports, a final project, and class participation.

Assessment	Deadline	Weight
Participation	Weekly	30%
Lab reports 1	March 1	15%
Lab report 2	April 5th	15%
Final Project	May 15th	40%
Total		100%

Pratt Institute Grade System

Grade	Evaluation	Quality Points per Credit
A	Excellent	4.0
A-	Excellent	3.7
B+	Very Good	3.3
B	Good	3.0
B-	Good	2.7
C+	Above Average	2.3
C	Average	2.0
C-	Below Average (UG only)	1.7
D+	Less than Acceptable (UG only)	1.3
D	Less than Acceptable (UG only)	1.0
F	Failure	0.0
WF	Failure Due to Lack of Attendance	0.0

Portfolio

Work completed for this course may be included in your portfolio. For more information on each program's portfolio requirements, please visit the program's respective webpage:

MS Library & Information Science Portfolio
MS Information Experience Design Portfolio
MS Data Analytics and Visualization Portfolio
MS Museums and Digital Culture Portfolio

Also, you are encouraged to meet with your advisor about including projects in your portfolio.

Course Calendar/Schedule

Date	Topic	Reading
Part I - Introduction		
Week 1￼28-Jan	Lecture: Introduction￼￼Workshop: Intro to Excel	Wilke: Ch 1, 2
Week 2￼4-Feb	Lecture: Principles of data visualization, chart types; Introduction to NYC Open Data and Social Explorer￼￼Workshop: Social Explorer	Wilke: Ch 3, 4, and 5
Part II - Practice		
Week 3￼11-Feb	Lecture: Visualizing amounts and distributions￼￼Workshop: Datawrapper pt. 1	Wilke: Ch 6, 7, and 9￼￼What Makes the Difference in a Stacked Bar Chart?￼￼Rethinking Bar Chart Order
Week 4￼18-Feb	Lecture: Visualizing proportions and Relationships￼￼Workshop: Datawrapper pt 2	Wilke: Ch 10, 11, and 12￼￼F-it, Let's Use Pie Charts
Week 5￼25-Feb	**Lab Report 1 Presentation**￼￼Workshop: Tech check – Google Colab	
Week 6￼4-Mar	Lecture: Intro to Python Intro￼￼Workshop: Intro to Google Collab, and programming in Python	
Week 7￼11-Mar	Lecture: Timeseries and trends￼￼Workshop: Working with data programmatically, data cleaning, feature engineering	Wilke: Ch 13 and 14
Week 8￼18-Mar	Spring Break - No class	
Week 9￼25-Mar	Lecture: Data visualization for statistics and data science.￼￼Workshop: Seaborn, MatplotLib, Scipy	Wilke: Ch 16 and 21
Week 10￼1-Apr	**Lab Report 2 Presentation**￼￼Workshop: Tables	Wilke: Ch 22￼￼Three Things You Can do to Make Your Data Tables More Visual
Week 11￼8-Apr	Lecture: Exploratory data visualization (interactive charts)￼￼Workshop: Plotly; Present ideas for final project	
Week 12￼15-Apr	Lecture: Geospatial data￼￼Workshop: Plotly, geopandas	Wilke: Ch 15
Week 13￼22-Apr	Lecture: Network data	

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	Workshop: Visualizing networks in Networkx (python) and Gephi; Final project data sources.	
	Part III – Special Topics and Final Projects	
Week 14 29-Apr	**Guest lecture: Will Geary – p5.js** Workshop: Final project updates	
Week 15 6-May	**Guest lecture: Dallas Maddox – AI at Amazon Web Services** Workshop: Final project prototype/user testing	
Week 16 13-May	**Final Project Presentations** Final product due Friday, May 15th	

Policies

The following abbreviated set of policies is especially relevant to this class. Full details on policies and procedures can be found on the Pratt website or in the Office of the Vice President for Student Affairs, Main Building, Lower Level.

Community Standards

All Pratt students, faculty, and staff members are expected to value and uphold the community standards essential to the pursuit of academic excellence and social responsibility. These include expectations for social conduct, academic integrity, non-discrimination, and other policies described in the link above, and apply to all Pratt-sponsored activities, on or off campus.

Academic Integrity

Academic integrity at Pratt means using your own and original ideas in creating academic work. It also means that if you use the ideas or influence of others in your work, you must acknowledge them.

At Pratt,
● We do our own work,
● We are creative, and
● We give credit where it is due.

When students submit any work for academic credit, they make an implicit claim that the work is wholly their own, completed without the assistance of any unauthorized person. These works include, but are not limited to exams, quizzes, presentations, papers, projects, studio work, and other assignments and assessments. In addition, no student shall prevent another student from making their work. Students may study, collaborate, and work together on assignments at the discretion of the instructor.

Examples of infractions include but are not limited to:
1. Plagiarism, defined as using the exact language or a close paraphrase of someone else's ideas without citation.
2. Violations of fair use, including the unauthorized and uncited use of another's artworks, images, designs, etc.

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3. The supplying or receiving of completed work including papers, projects, outlines, artworks, designs, prototypes, models, or research for submission by any person other than the author.
4. The unauthorized submission of the same or essentially the same piece of work for credit in two different classes.
5. The unauthorized supplying or receiving of information about the form or content of an examination.
6. The supplying or receiving of partial or complete answers, or suggestions for answers; or the supplying or receiving of assistance in interpretation of questions on any examination from any source not explicitly authorized. (This includes copying or reading of another student's work or consultation of notes or other sources during an examination.)
7. The use of generative artificial intelligence (AI) to produce or to improve work, whether visual or textual, except when called for by an assignment or instructor and acknowledged transparently as one tool among others in the creative process. (See also Pratt's [Statement on Artificial Intellgience](#))

The Academic Integrity Standing Committee (AISC) is charged with educating faculty, staff, and students about academic integrity practices. Whenever possible, we strive to resolve alleged infractions at the most local level possible, such as between student and professor, or within a department or school. When necessary, members of this committee will form an Academic Integrity Hearing Board to hear cases regarding cheating, plagiarism, and other infractions described below; these infractions can be grounds for citation, sanction, or dismissal. Detailed procedures are explained in the full version of the [Academic Integrity Policy](#).

Attendance Policy

Pratt Institute recognizes that students' attendance in classes is central to their success. Learning at Pratt relies on students interacting with the course content, other students, and their instructor, and in some cases, interacting with third parties through internship sites, field trips, studio visits, or in-class guests. At the same time, some absences may be unavoidable, especially those due to personal emergencies or illness. While some course content can be made up, many interactions during class, including discussion, group activities, and studio critique, are not replicable, and repeated absences may directly impact a student's ability to achieve the course learning outcomes and adversely affect other students' learning.

Consistent attendance is essential for the completion of any course or program and is a precondition for passing a course. Attendance alone cannot count as a specific portion of a student's grade, though class participation may be counted as part of a student's grade. A student's final grade may be lowered as a result of absences, at the discretion of the instructor and as specified on their syllabus. Repeated absences may result in a failing grade. For full details, see Pratt's [Attendance Policy](#).

Students with extensive absences (three or more for any reason) may be required to drop the course or may receive a failing grade at the discretion of the instructor. For more information on Pratt's Attendance Policy, please visit https://bit.ly/prattattendancepolicy

Academic Support

Multiple academic support resources are available to students across campus:
● For assistance with time management and/or studio, subject, and software tutoring,

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contact the Student Success Center at success@pratt.edu.
- For assistance with writing assignments, contact the Writing and Tutorial Center at wtc@pratt.edu. The Pratt Libraries can also help with research and citations.
- Academic advisors are also a great resource; students can find their advisor's contact information or schedule an appointment through Starfish.

Accessibility

The Learning/Access Center (L/AC) coordinates access for students with disabilities. Students who identify as having any type of disability are entitled and encouraged to enroll with the L/AC in order to determine and implement reasonable accommodations. Contact the Learning/Access Center at lac@pratt.edu or 718.802.3123 for information or to schedule an appointment.

Title IX, Nondiscrimination, and Anti-Harassment Policy

Pratt Institute is committed to fostering a safe and welcoming learning environment. The Institute's Title IX, Nondiscrimination, and Anti-Harassment Policy prohibits unlawful discrimination and harassment, and sexual misconduct including sex discrimination, sex-based harassment, sexual assault, dating/domestic violence, and stalking. The Institute takes prompt and appropriate action to address prohibited conduct, end a hostile environment if one has been created, and prevent the recurrence of a hostile environment. To submit a concern of prohibited conduct, please use the Title IX and Sexual Misconduct Disclosure Form. Title IX also covers accommodations for pregnancy and related conditions and/or parental status. Should you require a reasonable accommodation because of such status, please contact the Title IX Coordinator for assistance in obtaining accommodations.

Reporting requirement: The Title IX, Nondiscrimination, and Anti-Harassment Policy does require that I report any incident of discrimination, harassment, or sexual misconduct that you disclose to me to the Institute's Title IX Coordinator. If you do inform me of such conduct I will keep the information private. You are welcome to report an incident directly by contacting the Title IX Coordinator or using the Title IX and Sexual Misconduct Disclosure Form. You can also speak to someone confidentially by contacting our confidential resources in Health Services or the Counseling Center. For more information, please contact the Office of Institutional Equity and Title IX at titleIX@pratt.edu or 718.687.5171

Wellbeing

Pratt is dedicated to creating a culture where the entire community can flourish and thrive. Taking time to care for yourself and seeking appropriate support is important to achieving your academic and professional goals. Several resources are available through Starfish, including our Student Advocate and Care Coordinator, who can also be reached at 718.399.4546 or studentadvocate@pratt.edu. If you or anyone you know experiences overwhelming academic stress, persistent difficult feelings, or challenging life events, the Counseling Center can be reached 24/7 by calling 718.687.5356. To schedule a consultation, please call or email therapy@pratt.edu

Starfish

Starfish provides students with contact information for advisors, instructors, department chairs, and support services across the campus. Faculty can also use Starfish to inform students of their progress in class and connect them with resources. Students are contacted by support offices whenever a flag or referral is raised.

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Public Safety & Emergency Contacts

The Department of Public Safety provides 24-hour-a-day protection to the campus, including an emergency response guide. Contact Public Safety at security@pratt.edu or 718.636.3540. The Pratt Emergency Alert System is used to send urgent messages to registered mobile devices and emails (faculty, staff, and students have the option to opt-out, which must be renewed each year). You can update your emergency contact information in the Safety section of OnePratt.