

# PPPA 6021 Syllabus

McCall Pitcher | Summer 2024 | Trachtenberg School of Public Policy and Public Administration

## Course Logistics

Wednesdays and Fridays, 6:10 to 8:20pm, Tompkins 205

## Course Purpose

Not all graphics are created equal: some lie, some obscure, some illuminate, and some compel. This course studies how to spot lies and obfuscation and teaches you how to illuminate and compel. In this class, we learn how to distill large quantities of data into pictures that communicate.

Ideally, policy choices are driven by information. Because of its ability to generalize across large populations, the most credible information is frequently quantitative. However, data alone tell no story. Without visualization, it is very difficult for data to influence policy. This course challenges you to take raw numbers and create a story that can change impressions, long-held beliefs and ultimately policy. Together, we learn to tell stories with numbers using graphics.

## Learning Objectives

- Value high quality data graphics
- Present data to illustrate a narrative that could influence policy
- Understand how visualizations can rapidly and accurately convey a large amount of quantitative data
- Follow the logic of technical software that creates data visualizations
- Critically analyze data visualizations
- Work with big-ish datasets to produce summary analyses
- Use summary statistics in producing graphics
- Recognize the limits of cognition of visually displayed data, and produce graphics that speak to the broadest possible audience

## Contact and Office Hours

### Professor: McCall Pitcher

Office hours by appointment (send an email to schedule)

mccall.pitcher@gmail.com or mccallhopkin@gwu.edu

### Contact policy

Send programming-related questions and course administration questions relevant to all students to Piazza. Send any private issues to my email. On both platforms, I will do my best to answer emails within 24 hours during weekdays, or

within 24 hours on the soonest weekday if you email on the weekend. If you do not hear from me within this time frame, you should assume that your email has been lost and you should re-send.

## Prerequisites

PPPA 6013: Econometrics for Policy Research I

- I do not assume prior programming knowledge, either in R or any other statistical programming language.
- Because this class focuses on learning the basics of statistical programming, expect a greater time commitment if you have no prior programming experience.

## Readings

### Required readings

- Few, Stephen, [Show Me the Numbers: Designing Tables and Graphs to Enlighten](#)
- Chang, Winston, [R Graphics Cookbook: Practical Recipes for Visualizing Data](#). Also available online for free [here](#)
- Knaflic, Cole Nussbaumer [Storytelling with Data](#)
- Manson, Steven, [Mapping, Society, and Technology](#) (available for free)
- Tufte, Edward, [The Visual Display of Quantitative Information](#)

### Supplemental readings

- [Learning R](#)
- Schwabish, Jonathan, [Better Presentations: A Guide for Scholars, Researchers and Wonks](#)
- Other Data Visualization Course: [Enrico Bertini](#)
- Brunson and Comber, [An Introduction to R for Spatial Analysis and Mapping](#)
- Healy, Kieran, [Data Visualization: A Practical Introduction](#)
- Brewer, Cynthia A., [Designing Better Maps: A Guide for GIS Users](#)
- Wilkinson, Leland, et al, [The Grammar of Graphics](#)
- W.E.B. DuBois Center, [W.E.B. DuBois's Data Portraits: Visualizing Black America](#)

## Weekly Plan

Each lecture will cover both design principles and R coding. I expect that you do the associated reading before arriving in class. In class, we will discuss the readings and the R lesson for the lecture.

### *Before Class*

- You read the assigned texts
- Shortly before class, I post the lecture's programming tutorial

### *During Class*

- Administration overview
- Good, Bad and Ugly
- Answer questions from reading
- Present lecture on design principles and coding
- You work on coding

I aim to end class approximately 30-45 minutes before 8:20. I encourage you to use this remaining time to start on the tutorial so that I can help with problems as they arise. I will always stay until 8:20 to answer any remaining questions or provide programming help.

### *Outside of Class*

- Use Piazza for coding questions
- Familiarize yourselves with features that show blocks of code
- Learn how to create a “minimal reproducible example” of your problem. See Stack Overflow's excellent description [here](#).

## **Required Materials**

You need a laptop that you can bring to class. If you do not have one, plan to check one out from the library.

## **Assessment and Evaluation of Learning**

### **Programming Tutorials (36%)**

- Due each Wednesday
- Creating data visualizations requires technical knowledge.
- These tutorials and problem sets are designed to develop your R skills so you can successfully create the final project. Each class I will provide a structured handout to follow with questions to answer.
- The final product should be typed (ideally in R Markdown – we will cover how to do this in class).
- Of the 9 weeks with programming practice, the highest 8 weeks of assignments will count toward your grade. If you want feedback on all 9, you are welcome/encouraged to turn in all 9.

- I encourage you to work with others on these assignments. Whatever you turn in, however, needs to be in your own words; no work should directly duplicate classmates' work.
- Late assignments are not accepted.
- You will submit two tutorials per week (one per lecture). While you are encouraged to finish Wednesday lecture tutorials before coming to class on Fridays, both tutorials for the week will be due before the following Wednesday's lecture to give you a full week to complete them.

### **The Good, the Bad, and the Ugly (4%)**

- Due on your sign-up date
- One of the goals of this course is for you to recognize quality data visualizations and misleading or cluttered data visualizations.
- This will help you review and identify the strategies from the previous class, and will require you to explain the strengths and weaknesses of the graphics.
- To this end, two students each week will find a visualization that can be improved based on the previous week's class.
- Each student is responsible for bringing three specific discussion points on the graph for the beginning of class.
- We will make assignments for this activity the first class.
- Late assignments are not accepted.

### **Policy Presentation Proposal (2%)**

- Due Wednesday, June 5
- To make sure that you have chosen a manageable topic for the final policy presentation, on lecture 5 (June 5) you will turn in a description of what you are planning to visualize.
- This should be one page or less. It should identify your data source(s), and outline what you'd like to say.
- I will provide written feedback on your proposal within one week of submission.
- I will comment on, but not give credit for, late work

### **Fully Composed Chart (15%)**

- Due Friday, June 14
- This assignment is a warm-up for your policy presentation and a chance to get feedback before the presentation.
- On the 14th you will turn in a fully executed graph on the topic of your choice, along with the code in R.

- More detailed handout will be available on Blackboard.
- Late assignments are not accepted.

### **In-class Storyboarding Workshop (0%)**

- In-class Friday, June 21
- Lecture 9 you will work together with your classmates to workshop the story you are planning to tell in your policy presentation. Are there additional elements you should add to your charts? Does the setup and flow make sense?
- You should incorporate feedback from this workshop into your presentation.
- This will be an in-class activity

### **Final Policy Presentation (40%)**

- Due Wednesday, June 26
- You will present six to eight data visualizations that tell a story about a policy topic of your choice.
- The goal of this exercise is for you to
  - Connect what we've learned in course with policy
  - Practice R
  - Direct inquiry toward an unstructured project
  - Challenge your newly developed visualization skills
- You are required to use micro data, in the sense that the data you load are less aggregated than (at least) some of the data you present.
- Logistics
  - Presentations will take place during our last two classes (Wednesday, June 26 and Friday, June 28).
  - You are welcome, but not required, to work in pairs. Requirements do not differ if you work in pairs; you should correctly interpret this as an incentive to work in pairs.

### **Class Participation (3%)**

- The first half of each class will be spent in a lecture/discussion of graphical presentation.
- To make sure you're up to date with the reading -- which should help you understand the creation of good graphics.
- Come prepared to answer questions.

## Trachtenberg School Course Policies

- *The Syllabus*  
This syllabus is your guide to the course. If any questions arise, please check the syllabus before contacting me. Sound educational practice requires flexibility and I may revise content and requirements during the semester.
- *Late or Missed Class*  
If you are late or absent from class, it is your responsibility to obtain all announcements, assignments, and handouts from this website or from your classmates. As participation is part of your grade, and because attendance in class helps you learn, missing many classes will be detrimental to your final grade. Missing one class should have no effect. You do not need to notify me in advance if you are going to miss class.
- *Presentation Dates*  
Please notify me in the first two weeks of class if you are aware of a pre-existing conflict, such as a religious holiday you observe, that will preclude you from taking presenting at the assigned time. To the extent possible, we will work together to reschedule the presentation as close to the original date as possible.
- *Collaboration on Assignments*  
You are welcome to work in groups; however, you are expected to write up your answers individually. This means that no phrases on your assignment should mimic phrases on any other student's work.
- *Submission of Written Work Products after Due Date*  
All work must be submitted by the assigned due date in order to receive full credit. Only extreme circumstances warrant exceptions. Late assignments will be marked down for each day that they are late.
- *Academic Honesty*  
All examinations and other graded work products are to be completed in conformance with the George Washington University [Code of Academic Integrity](#). Note especially the definition of plagiarism: "intentionally representing the words, ideas, or sequence of ideas of another as one's own in any academic exercise; failure to attribute any of the following: quotations, paraphrases, or borrowed information."

- *Incompletes*  
You must consult with me to obtain an incomplete no later than the last day of classes in the semester. At that time, we will both sign the CCAS contract for incompletes and submit a copy to the School Director. Please consult the TSPPPA Student Handbook or visit this [link](#) for the complete CCAS policy on incompletes.
- *Changing Grades After Completion of Course*  
No changes can be made in grades after the conclusion of the semester, other than in cases of clerical error.
- *Accommodation for Students with Disabilities*  
If you need extra time on exams or assignments due to a disability, let me know in the first week of class. In order to receive accommodations on the basis of disability, you'll need to provide proper documentation to the Office of Disability Support Services, Marvin Center 436, 202-994-8250. Accommodations will be made based upon the recommendations of the DSS Office.
- *University Counseling Center*  
The [University Counseling Center](#) (UCC), 202-994-5300, offers 24/7 assistance and referral to address students' personal, social, career, and study skills problems. Services for students include: crisis and emergency mental health consultations; confidential assessment, counseling services (individual and small group), and referrals
- *Religious Holidays*  
If you need to miss a class to observe a religious holiday, please notify me the first week of classes about any conflict; we will arrange an absence without penalty.
- *Out of Class Learning*  
Average minimum amount of independent, out-of-class, learning expected per week: For a 12-week semester, students should plan to spend approximately 7 to 10 hours on work outside of class.

## University Policies

- *Academic Integrity Code*  
Academic integrity is an essential part of the educational process, and all members of the GW community take these matters very seriously. As the instructor of record for this course, my role is to provide clear expectations and uphold them in all assessments. Violations of academic integrity occur when students fail to cite research sources properly, engage in unauthorized collaboration, falsify data, and otherwise violate the [Code of Academic Integrity](#). If you have any questions about whether particular academic practices or resources are permitted, you should ask

me for clarification. If you are reported for an academic integrity violation, you should contact Student Rights and Responsibilities (SRR) to learn more about your rights and options in the process. Consequences can range from failure of assignment to expulsion from the University and may include a transcript notation. For more information, refer to the SRR website at [studentconduct.gwu.edu/academic-integrity](http://studentconduct.gwu.edu/academic-integrity), email [rights@gwu.edu](mailto:rights@gwu.edu), or call 202-994-6757.

- *University policy on observance of religious holidays*  
Students must notify faculty during the first week of the semester in which they are enrolled in the course, or as early as possible, but no later than three weeks prior to the absence, of their intention to be absent from class on their day(s) of religious observance. If the holiday falls within the first three weeks of class, the student must inform faculty in the first week of the semester. For details and policy, see [provost.gwu.edu/policies-procedures-and-guidelines](http://provost.gwu.edu/policies-procedures-and-guidelines).
- *Use of Electronic Course Materials and Class Recordings*  
Students are encouraged to use electronic course materials, including recorded class sessions, for private personal use in connection with their academic program of study. Electronic course materials and recorded class sessions should not be shared or used for non-course related purposes unless express permission has been granted by the instructor. Students who impermissibly share any electronic course materials are subject to discipline under the Student Code of Conduct. Contact the instructor if you have questions regarding what constitutes permissible or impermissible use of electronic course materials and/or recorded class sessions. Contact Disability Support Services at [disabilitysupport.gwu.edu](http://disabilitysupport.gwu.edu) if you have questions or need assistance in accessing electronic course materials.

## Academic Support

- *Academic Commons*  
[Academic Commons](#) is the central location for academic support resources for GW students. To schedule a peer tutoring session for a variety of courses visit [go.gwu.edu/tutoring](http://go.gwu.edu/tutoring). Visit [academiccommons.gwu.edu](http://academiccommons.gwu.edu) for study skills tips, finding help with research, and connecting with other campus resources. For questions email [academiccommons@gwu.edu](mailto:academiccommons@gwu.edu).
- *GW Writing Center*  
GW Writing Center cultivates confident writers in the University community by facilitating collaborative, critical, and inclusive conversations at all stages of the writing process. Working alongside peer mentors, writers develop strategies to write independently in academic and public settings. Appointments can be booked online at [gwu.mywconline.com](http://gwu.mywconline.com).

## Support for Students In and Outside the Classroom

- *Disability Support Services (DSS) - 202-994-8250*  
Any student who may need an accommodation based on the potential impact of a disability should contact Disability Support Services at [disabilitysupport.gwu.edu](http://disabilitysupport.gwu.edu) to establish eligibility and to coordinate reasonable accommodations.
- *Student Health Center - 202-994-5300, 24/7*  
The Student Health Center (SHC) offers medical, counseling/psychological, and psychiatric services to GW students. More information about the SHC is available at [healthcenter.gwu.edu](http://healthcenter.gwu.edu). Students experiencing a medical or mental health emergency on campus should contact GW Emergency Services at 202-994-6111, or off campus at 911.

## GW Campus Emergency Information

GW Emergency Services: 202-994-6111 For situation-specific instructions, refer to [GW's Emergency Procedures guide](#).

- *GW Alert*  
GW Alert is an emergency notification system that sends alerts to the GW community. GW requests students, faculty, and staff maintain current contact information by logging on to [alert.gwu.edu](http://alert.gwu.edu). Alerts are sent via email, text, social media, and other means, including the Guardian app. The Guardian app is a safety app that allows you to communicate quickly with GW Emergency Services, 911, and other resources. Learn more at [safety.gwu.edu](http://safety.gwu.edu).
- *Protective Actions*  
GW prescribes four protective actions that can be issued by university officials depending on the type of emergency. All GW community members are expected to follow directions according to the specified protective action. The protective actions are Shelter, Evacuate, Secure, and Lockdown (details below). Learn more at [safety.gwu.edu/gw-standard-emergency-statuses](http://safety.gwu.edu/gw-standard-emergency-statuses).

### Shelter

- Protection from a specific hazard
- The hazard could be a tornado, earthquake, hazardous material spill, or other environmental emergency.
- Specific safety guidance will be shared on a case-by-case basis.
- **Action:** Follow safety guidance for the hazard.

## Evacuate

- Need to move people from one location to another.
- Students and staff should be prepared to follow specific instructions given by first responders and University officials.
- **Action:** (1) Evacuate to a designated location. (2) Leave belongings behind. (3) Follow additional instructions from first responders.

## Secure

- Threat or hazard outside of buildings or around campus.
- Increased security, secured building perimeter, increased situational awareness, and restricted access to entry doors.
- **Action:** (1) Go inside and stay inside. (2) Activities inside may continue.

## Lockdown

- Threat or hazard with the potential to impact individuals inside buildings.
- Room-based protocol that requires locking interior doors, turning off lights, and staying out of sight of corridor window.
- **Action:**(1) Locks, lights, out of sight. (2) Consider Run, Hide, Fight.