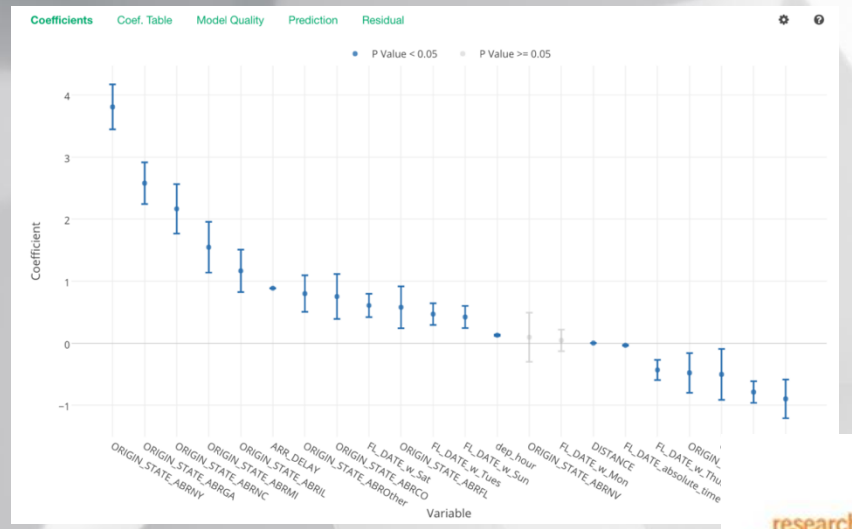

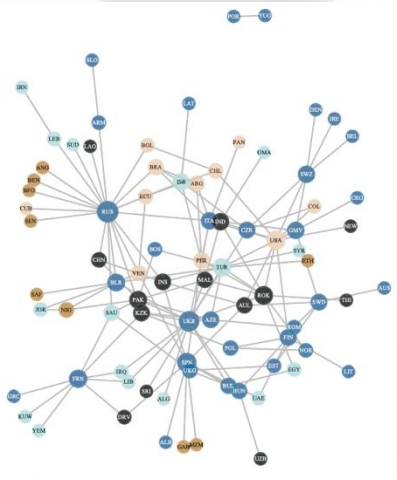

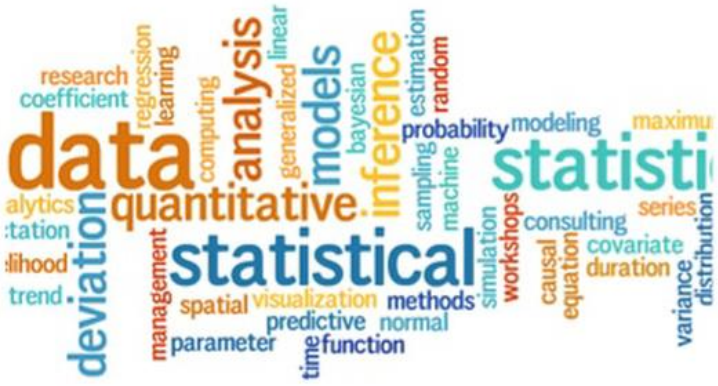

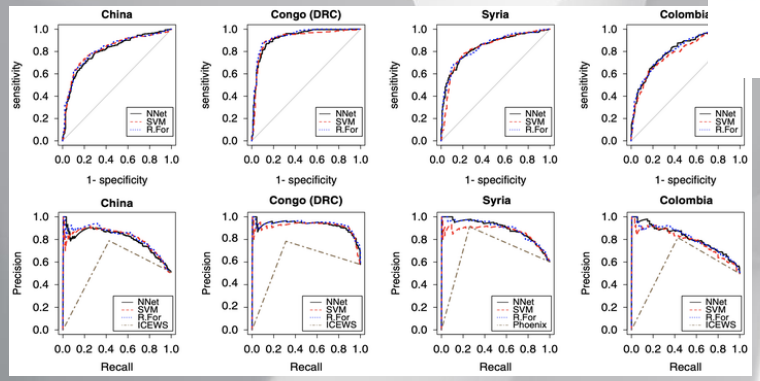

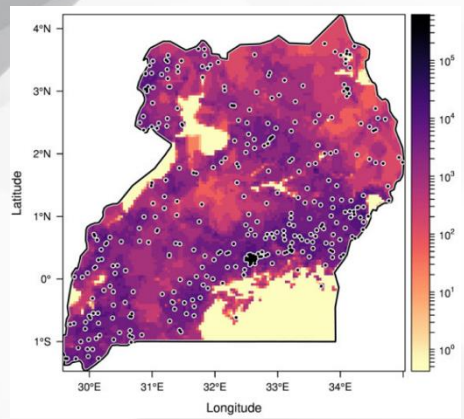

POLI 502 Methods of Political Analysis

DR. HOWARD LIU

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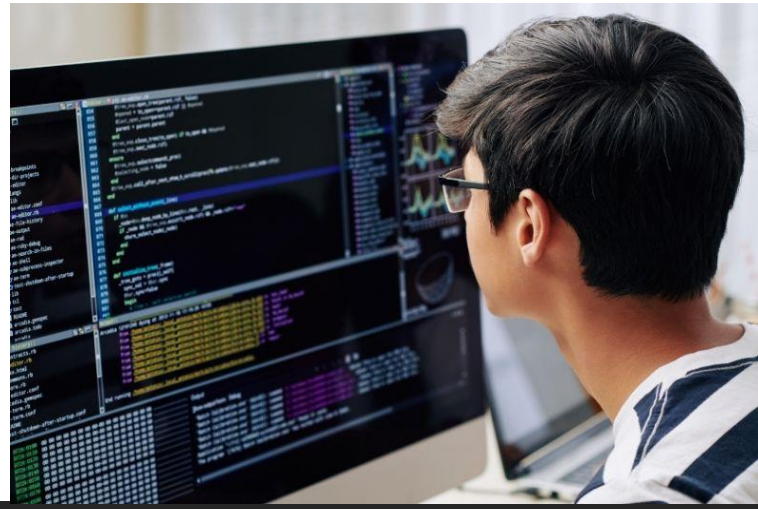
Welcome!

Module Objectives:

1. Become a good political science knowledge "consumer"
   - Read, understand, and evaluate **statistical analyses** published in PS journals
   - Acquire the basics statistical knowledge to become a **future data scientist**
   - Be able to take more advanced courses

2. Become a good political science knowledge "producer"
   - Be able to conduct rigorous quantitative analyses/research
   - Be familiar with basic statistical models
   - **Feel comfortable analyzing data in R**



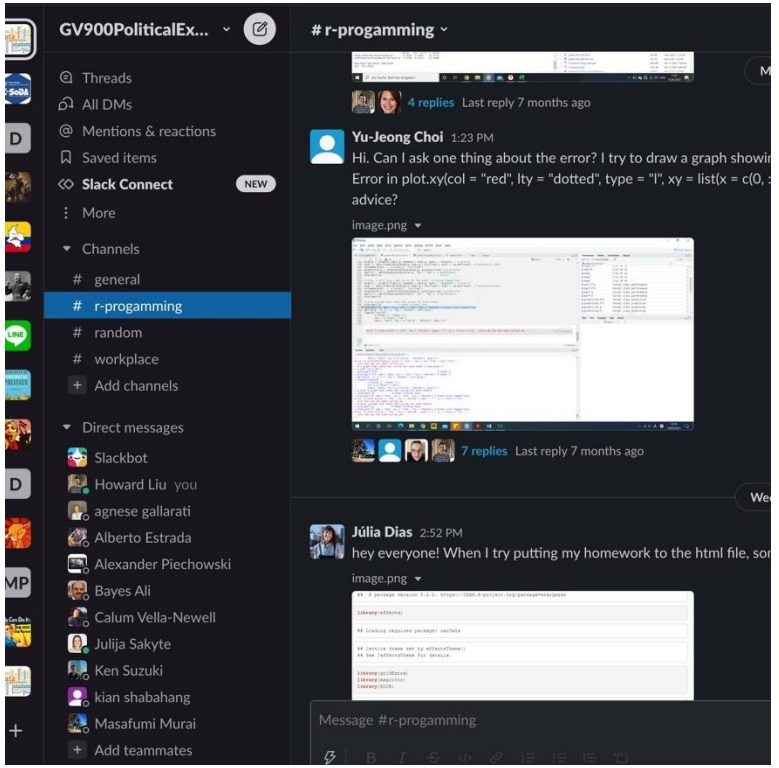
Class Structure

1. Lecture: ~1.5 hour lecture
   - Teach basic knowledge on research design and statistical concepts

2. R session: ~1 hour programming session
   - Teach R programming step by step
   - Answer programming questions
   - Will likely have extra support hours before exams

3. Slack:
   - We don't use email to communicate. Use Slack.
   - Post questions on Slack. Either I or TA or other students will jump in to answer

4. Office hours: Appointment-based



Schedule

Week 1-2 Introduction and logistic

Week 3 Scientific studies overview (quantitative approach)

Week 4 Evaluating theories of politics

Week 5 Measurement

Week 6 Probability I: The basic

Week 7 Probability II : Random variables and distributions

Week 8 Probability III: Central Limited Theorm

Week 9-10 Inference & Hypothesis Testing (bivariate)

Week 11 Inference & Hypothesis Testing (multivariate) …

Schedule

Week 13: Interactive model in regression

Week 14: Nonlinear model in regression

Week 15: Predictive model in regression

Logistics

1. Book (FPSR): The Fundamentals of Political Science Research (Kellstedt and Whitten 2018)
   - 1st or 2nd edition may work

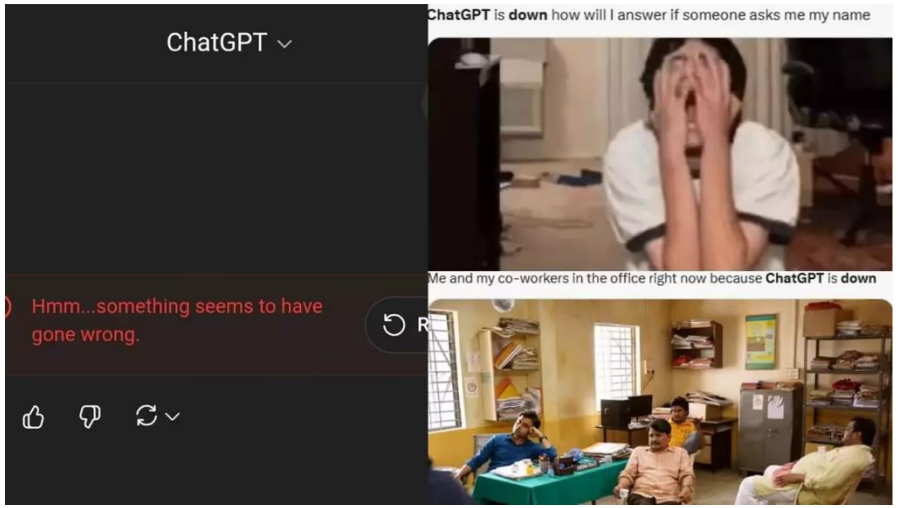
2. Install R, Positron, and RStudio on your computer
   - Mac: https://www.youtube.com/watch?v=1PsPfMaLWSk
   - Windows: https://www.youtube.com/watch?v=9-RrkJQQYqY
   - Positron IDE: https://www.youtube.com/watch?v=VPHuCl8asjQ

3. Install Latex on your computer
   - Mac: https://www.youtube.com/watch?v=nUuW_8Hy1qA
   - Windows: https://www.youtube.com/watch?v=kSN-gS4SIqc

Logistics

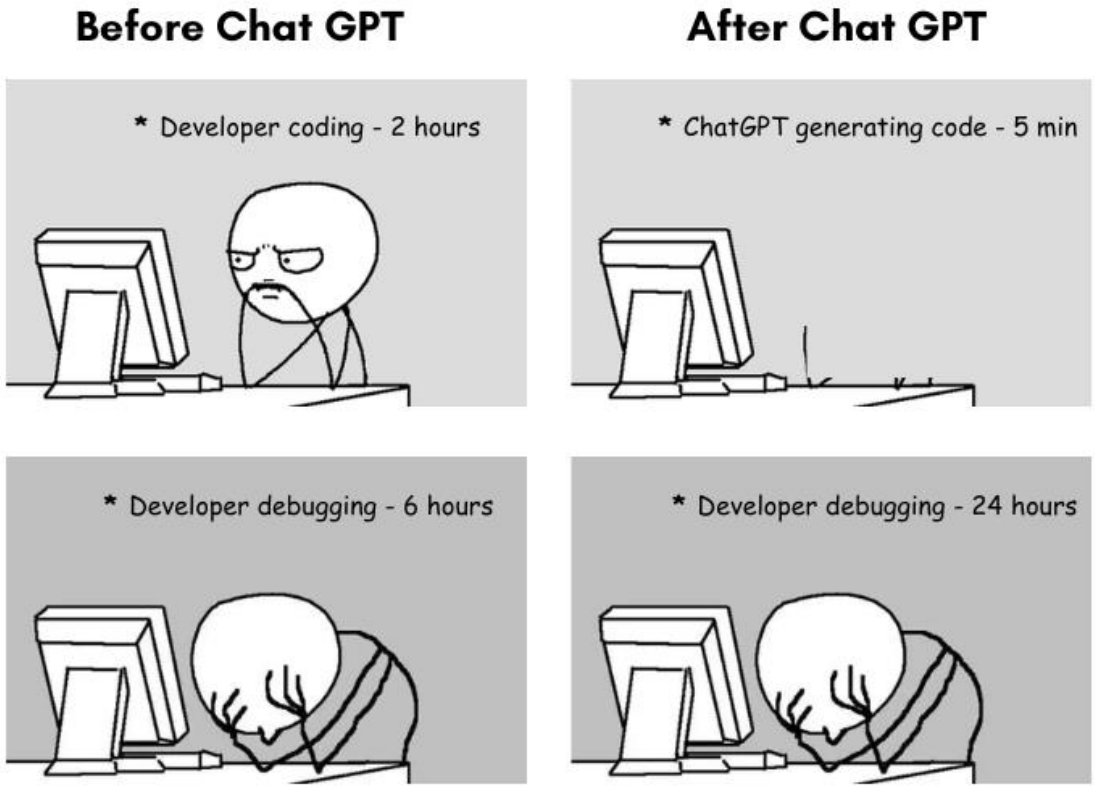
3. Advice: Google is your best friend
   - ~~StackOverflow~~ (Q&A platform for programming) (-2023)
   - ~~Now, **ChatGPT** is your best friend (2024-25)~~
   - Now, **Agentic AI (Claude, ChatGPT, Gemini)** is your best friend (2026)
   - I would advise you to Google/AI before you ask questions on Slack

4. Slack as our main mode of communication: (join by next week)
   - Install tutorial: https://slack.com/help/articles/207677868-Download-Slack-for-Mac.
   - Everyone can ask; everyone can answer
   - A TA and I will monitor Slack regularly, and you should do the same
   - You can email me "if" you have time-sensitive matters. For everything else please goes to Slack.



AI policy

- AI as an **assistant**, not a replacement for your work
- You still need to understand the basics of programming yourself → in-person proctored exams (no AI)
- Don't fully trust AI; it can be wrong (wrong code and wrong results)



Plagiarism

Plagiarism in essay writing

- Uses other people's words or the same pattern of words without referencing

Plagiarism in computing codes

- What's okay to do:
  - Work with your classmates but submit your own independent work (code structures and comments are all independent)
  - Don't allow others to copy your code because you will be penalized too
- What's not okay to do:
  - Copy and paste codes from your classmates (I, and text similarity programs I use, can tell by reading the code and repetitively seeing exactly same errors)
  - Simply add a few words in the code comments
  - Simply change an object name from x to x1
  - Suspected cases will be notified and sent to the Academic Offenses Office
  - 2020-2022: 38 individuals, 13 penalties

Assignments and Grades

- Weekly homework submission: TA graded
- In-person midterm: on syllabus
- In-person final: on syllabus
- Attendance (10%), Weekly homework (20%), Midterm (30%), Final (40%).

Late Submission Policy

- Don’t be late. Don’t write your code in the last minute.
- Don’t accept late submissions more than a week.
- If your submission is later than a week, your mark will be deducted by 10% per day.

Slack and Support Hours

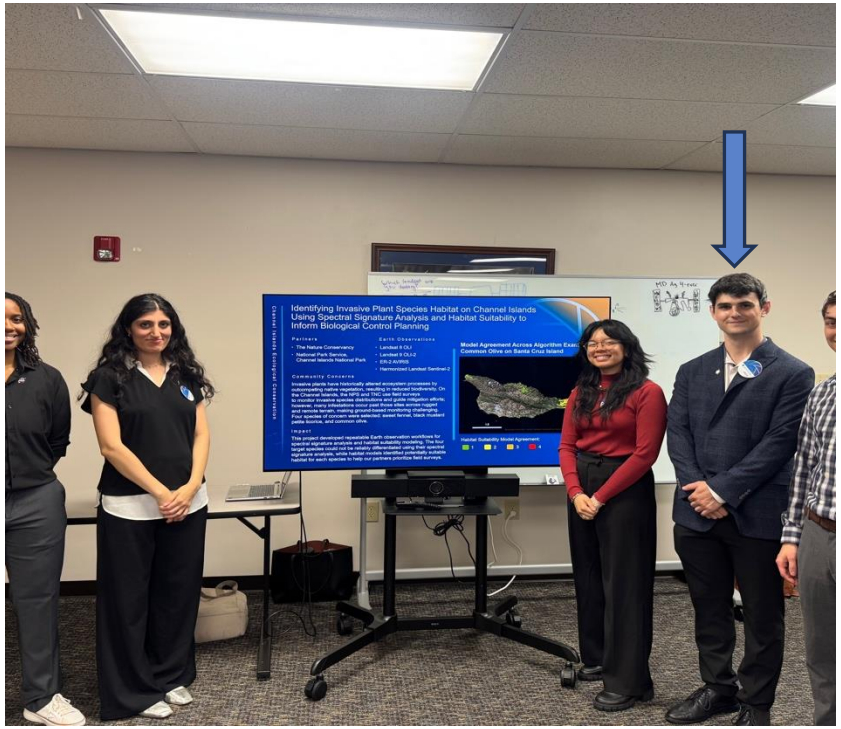
- Slack ethics:
  - It eases our communication, but don't abuse it: I will reply within 24 hours.
  - If you are helped, help others too: It's how a coding community works.
  - Students can't ask help on the midterm and the final. They should be independent submissions.
  - Respect others' time and show appreciation.

  - Relationship:
    - A part of graduate training is to learn how to build a collegial relationship with your colleagues and classmates, and work together.
    - Helping others is helping yourself

A recent student email (undergrad)

"…I wanted to reach out with an update on what I've been up to since graduating and to thank you for the impact you had on me during my time at UofSC.

I've found myself very firmly in the environmental GIS world after recently completing internships with the SCDNR Heritage Trust Program and, most recently, the NASA EarthRISE Developers Academy. With EarthRISE, I worked with the National Park Service and The Nature Conservancy to model invasive plant species habitat suitability across the Channel Islands. Just last week, our team traveled to NASA's Marshall Space Flight Center in Huntsville, Alabama, where we presented our work at a poster session and gave a flash talk. While we were there, we also learned that only about 5% of virtual applicants were accepted into the program, and I was honored to be nominated for STELLAR Developer of the Term. I've attached a photo of me and my team at the poster session.

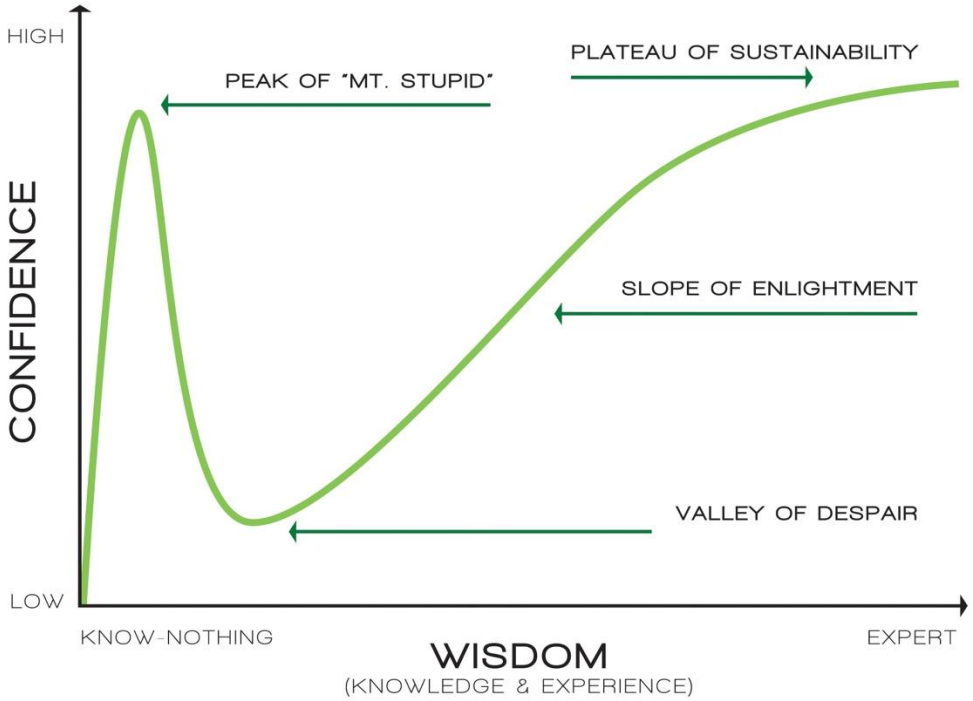


Even though my path has shifted away from political science, I've thought a lot about how influential your Methods of Political Science course was in getting me here**. Your class was my first real introduction to programming, R, data science, and quantitative research, and you also introduced me to GitHub. I certainly didn't expect at the time that I would eventually be managing my NASA team's GitHub repository or using programming and quantitative methods so extensively in my work. This fall, I'll be starting an M.S. in Geography and Environment at The George Washington University, where I'll also serve as a Graduate Teaching Assistant, and one of my first courses will be Intro to Data Science.**

More than anything, I wanted to thank you for how much enthusiasm and encouragement you brought to that course. It opened my eyes to an entirely different way of approaching research and gave me a foundation that I've continued building on ever since. You were one of the professors I really valued learning from at UofSC, and your course ended up having a much larger influence on my path than I could have anticipated at the time. …"

Some thoughts ..

- Every year, at least 1-2 students drop out (undergrads or people with full-time jobs)
- They feel programming is too much work and beyond what they can handle
- It's not easy, but it will get easier. (It's far easier than the intro class I took as a grad student)
- If you put in hard work, it's going be worth it for your future career



Homework for the First Week

Complete the survey here: https://forms.gle/3tMwiH87AXLD6UTW6

Get R, Rstudio, and Latex installed and ready to be used

Join and say hi 🙋 🙋 on our Slack channel

Email/Slack etiquette: You can just call me Howard, or at least call me Howard

→ Finish the above by the start of next week class

Homework for the First Week

Enjoy the fun in this class!