

POLI 7450: Computational Methods for Comparative Research

Prof. Frederick Solt

Spring 2019

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Office Hours: TTh 9:30 to 11:00 am and by appointment

Office: 324 Schaeffer Hall

Web: cmcr-class.github.io

Class Hours: T 11:00 am to 1:50 pm

Class Room: 103 Schaeffer Hall

Overview

In this course, you will learn to identify common methodological issues encountered in quantitative comparative research and to address them using computational techniques. Topics covered include data wrangling, exploration, and analysis (i.e., ‘data science’); Bayesian estimation of latent variables such as democracy, judicial independence, and respect for human rights across countries and over time; and computational approaches to the study of the dynamics of public opinion both within and across countries. This course is cross-listed in Comparative Politics and Methodology; it may be used to meet requirements in either subfield (but not both).

Course Requirements

Your grade will be based on class participation (25%), assignments (25%), an exam (25%), and a research paper (25%). The following grades may be assigned at the end of the class: A+, A, A-, B+, B, B-, C+, C, C-, D+, D, D-, F.

Class Participation

By this point in your career this should really go without saying, but here it is anyway: you can’t learn in a class if you don’t show up. You should attend every meeting having completed the readings and assignments, that is, you should be ready to discuss use cases, ask good questions, and share any difficulties you’ve encountered.

We will also be using [the Issues tab of a dedicated GitHub repository](#) to continue our discussions outside of class. To start a new thread, create a new issue. If you want to be sure to get the attention of someone in particular, use their GitHub handle—mine is [@fsolt](#)—to tag them in your post: GitHub sends an email to people when they are tagged.

Assignments

To practice your new skills, you will have regular assignments. Many will be completed through GitHub in a private repository for each student (besides you, only I will have access to your homework repo).

Exam

The exam will be held in class on Oct 12. It will be open-note, open-interwebs—you know, like [IRL](#).

Research Paper

The research paper for this course is more straightforward than the usual: the assignment is “simply” to write a fully reproducible version of a quantitative research paper you prepared for another class. Ideally the

paper will be for a class you are taking this semester, so that you use best practices as you go; you will need to confirm with the instructor of that course that this is acceptable to her or him. Rewriting a promising paper from past coursework will also be fine, though. If you're stuck for an appropriate paper, talk to me and we will work it out.

For your paper, you will:

- write using RMarkdown (or `knitr`) with interspersed R code and text,
- begin with raw data collection,
- include all steps of data cleaning and analysis,
- present figures rather than tables,
- use BibTeX for citations,
- automatically generate PDF, html, and (^{eeewww!}) Word versions,
- do your work in a GitHub repository,
- submit a link to that repo.

Papers are due the last day of exam week, Friday, May 10, before midnight.

Week 1, January 15: Introduction to the Course

Assignment: Bryan, Jennifer. 2016. *Happy Git and GitHub for the UseR*. Chapters 1-16. Read this carefully and follow its instructions to get set up with R, RStudio, Git, and GitHub on your laptop before we meet.

Week 2, January 22: The Replication Crisis and Reproducibility

Readings:

1. Aschwanden, Christie, and Maggie Koerth-Baker. 2016. "How Two Grad Students Uncovered an Apparent Fraud—and a Way to Change Opinions on Transgender Rights." *FiveThirtyEight*, April 7, and Dimitrova, Velichka. 2013. "Reinhart-Rogoff Revisited: Coding Errors Happen—Key Problem Was in Not Making the Data Openly Available from the Start." *LSE: The Impact Blog*, April 24.
2. Data Access and Research Transparency (DA-RT): A Joint Statement by Political Science Journal Editors.
3. *AJPS* Replication and Verification Policy and Jacoby, William G. 2015. "American Journal of Political Science: Guidelines for Preparing Replication Files."
4. Gelman, Andrew, and Eric Loken. 2013. "The Garden of Forking Paths: Why Multiple Comparisons Can Be a Problem, Even When There Is No 'Fishing Expedition' or 'p-Hacking' and the Research Hypothesis Was Posited Ahead of Time."
5. Leek, Jeffrey T., and Roger D. Peng. 2015. "Opinion: Reproducible Research Can Still Be Wrong: Adopting a Prevention Approach." *Proceedings of the National Academy of Sciences* 112(6):1645-1646 and Patil, Prasad, Roger D. Peng, and Jeffrey T. Leek. 2016. "A Statistical Definition for Reproducibility and Replicability." *bioRxiv*, July 29.
6. Solt, Frederick, Yue Hu, Kevan Hudson, Jungmin Song, and Dong 'Erico' Yu. 2017. "Economic Inequality and Class Consciousness." *Journal of Politics* 79(3):1079-1083.

Assignment: Bryan, Jennifer. 2016. *Happy Git and GitHub for the UseR*. Chapter 18.

Week 3, January 29:

Week 4, February 5:

Week 5, February 12:

Week 6, February 19:

Week 7, February 26: Scraping (and Managing) Data

Readings:

1. Bryan, Jennifer. "Organization I: File Naming."

2. Janz, Nicole. 2015. “Good Practice in Data Collection and Storing.” *Political Science Replication*, March 16.
3. Robinson, David. 2016. “Text Analysis of Trump’s Tweets Confirms He Writes Only the (Angrier) Android Half.” *Variance Explained*, August 9.
4. Persson, Eric. 2017. *gesis*: R Client for GESIS Data Catalogue (DBK). R package version 0.2.1, Solt, Frederick and Kellen Gracey. 2016. *icpsrdata*: Reproducible Data Retrieval from the ICPSR Archive. R package version 0.3.0., and Frederick Solt (2018). *ropercenter*: Reproducible Data Retrieval from the Roper Center Data Archive. R package version 0.2.0.
5. RStudio. 2014. “*rvest*: Easy Web Scraping with R.” *RStudio Blog*, November 24.

Week 8, March 5: Multilevel Models of Multiple Surveys I

Readings:

Solt, Frederick. 2008. “Economic Inequality and Democratic Political Engagement.” *American Journal of Political Science* 52(1):48-60.

Week 9, March 12: Multilevel Models of Multiple Surveys II

Readings:

Week 10, March 19: Spring Break

Week 11, March 26: Crowdsourcing Cross-National Data

Readings:

Benoit, Kenneth, Drew Conway, Benjamin E. Lauderdale, Michael Laver, and Slava Mikhaylov. 2016. “Crowd-sourced Text Analysis: Reproducible and Agile Production of Political Data.” *American Political Science Review* 110(2):278-295.

Week 12, April 2: Estimating Cross-National Latent Variables

Readings:

1. Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2010. “Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type.” *Political Analysis* 18(4):426-449.
2. Fariss, Christopher J. 2014. “Respect for Human Rights Has Improved Over Time: Modeling the Changing Standard of Accountability.” *American Political Science Review* 108(2):297-318.
3. Linzer, Drew A., and Jeffrey K. Staton. 2015. “A Global Measure of Judicial Independence, 1948-2012.” *Journal of Law and Courts* 3(2):223-256.

Week 13, April 9: Analysis with Cross-National Latent Variables

Readings:

Crabtree, Charles D., and Fariss, Christopher J. 2015. “Uncovering Patterns Among Latent Variables: Human Rights and De Facto Judicial Independence.” *Research & Politics* 2(3):1-9.

Assignment: Pemstein, Meserve, and Melton provide an example of how use Stata to employ their Unified Democracy Scores in research. Replicate their example but show instead how to use the UDS in R. You *might* find Crabtree and Fariss’s reproducibility materials to be a bit helpful, but you should of course use the *tidyverse* methods we’ve learned this semester.

Week 14, April 16: Public Opinion in One Country as a Latent Variable

Readings:

McGann, Anthony J. 2014. “Estimating the Political Center from Aggregate Data: An Item Response Theory Alternative to the Stimson Dyad Ratios Algorithm.” *Political Analysis* 22(1):115-129.

Week 15, April 23: Public Opinion as a Cross-National Latent Variable

Week 16, April 30: Presentations

Further Course Information

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the [CLAS Student Academic Handbook](#).

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences. (*Operations Manual*, III.15.2. Scroll down to k.11.) In fact, I will only respond to email sent from your Hawkmail (that is, @uiowa.edu) email account.

Accommodations for Disabilities

The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which includes but is not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS. See <https://sds.studentlife.uiowa.edu/> for information.

Academic Honesty

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's [Code of Academic Honesty](#): "I pledge to do my own academic work and to excel to the best of my abilities, upholding the [IOWA Challenge](#). I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](#)).

CLAS Final Examination Policies

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. **No exams of any kind are allowed during the last week of classes.** All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, [Professor Solt](#), and then the departmental DEO, [Dr. Brian Lai](#) (Office: 343 SH). Complaints must be made within six months of the incident. See the [CLAS Student Academic Handbook](#).

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to

a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the [UI Office of the Sexual Misconduct Response Coordinator](#) for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the [Department of Public Safety website](#).

Student Resources

I encourage interested students to make use of [the Writing Center](#) and [the Speaking Center](#).