

Master of Science in Political Analytics

POAN 5120 - Electoral Data & Predictive Modeling
Spring 2024: Wednesdays, 4:10 pm - 6:00 pm
3 Credits, Elective, In-Person

Instructor:
Office Hours:
Response Policy:

Teaching Assistant:
Office Hours:
Response Policy:

Course Overview

A dizzying amount of data is available to study elections and politics, including survey and polling data on individual preferences, beliefs, and choices; data on aggregate conditions and election outcomes; augmented voter files detailing voting history and other voter attributes; and, in more recent years, a wide range of online data. From polling analysts and pundits to campaign managers and career journalists, making sense of this data can create a competitive advantage for professionals working in the field of politics. By analyzing the results of previous elections, insights can be gleaned to enhance our understanding of electoral outcomes and be used to build models that can predict future behavior.

This course will familiarize students with the vast array of available political data as well as a number of statistical and machine learning techniques for analyzing that data and extracting political insights and predictions. Students will work with various types of data and starter code to build their data wrangling and computational skills. Students will also learn how to explore data, build predictive models, and derive insights and knowledge based on the results.

This course is a full semester selective course in the Political Analytics program. Students from other programs may enroll, but priority will be given to Political Analytics students. The course will meet once per week in person for fourteen weeks. Students should have taken at least one course in statistics prior to this course and have working familiarity with the R statistical programming language.

Learning Objectives

Upon successful completion of this course, students should be able to:

- L1. Locate and describe important political data sets used in electoral analysis and prediction.
- L2. Gather and prepare political data in ways that are useful for analysis and model building.
- L3. Explain what individual and aggregate-level factors predict political behavior.

- L4. Apply statistical and predictive modeling techniques to political data sets.
- L5. Interpret the results of statistical and modeling outputs.
- L6. Present and effectively communicate the results of electoral data analyses and forecasting models.

Readings

Books

Required:

Aldrich, John, Jamie Carson, Brad T. Gomez, and Jennifer Merolla. *Change and Continuity in the 2020 and 2022 Elections*. Rowman and Littlefield, 2023. [Available as Ebook at CU Library]

James, Gareth, Daniela Witten, Trevor Hastie, and Robert Tibshirani. *An Introduction to Statistical Learning with Applications in R*. Springer, 2023. [available online for free:
https://hastie.su.domains/ISLR2/ISLRv2_corrected_June_2023.pdf.download.html]

Supplemental:

The following books are not required but may be helpful to refer to for additional explanations of statistical and modeling topics:

- Kuhn, Max, and Kjell Johnson. *Applied Predictive Modeling*. Springer, 2013.
- Imai, Kosuke and Nora Webb Williams. *Quantitative Social Science: An Introduction in tidyverse*. Princeton University Press, 2022.
- Stock, James H., and Mark W. Watson. *Introduction to Econometrics*, 2nd ed. Pearson Education, 2007.

Articles and Chapters:

[Also available by the week they are assigned in the schedule below.]

538. *Polling Aggregation Methodology*. (4 pages) <https://abcnews.go.com/538/polling-averages-work/story?id=103232260>.

AAPOR. 2021. *Task Force on 2020 Pre-Election Polling*. (61 pages) https://aapor.org/wp-content/uploads/2022/11/AAPOR-Task-Force-on-2020-Pre-Election-Polling_Report-FNL.pdf

Armstrong, J. Scott, and Andreas Graefe. 2021. "The PollyVote Popular Vote Forecast for the 2020 U.S. Presidential Election." *PS: Political Science & Politics*, 54(1): 96-98. (3 pages)

Barber, Michael and Jeremy Pope. 2018. "Does Party Trump Ideology? Disentangling Party and Ideology in America." *American Political Science Review*, 113(1):38-54. (17 pages)

- Bafumi, Joseph and Robert Y. Shapiro. 2009. "A New Partisan Voter." *The Journal of Politics*, 71(1):1-24. (24 pages)
- Barreto, Matt. 2007. "Si Se Puede! Latino Candidates and the Mobilization of Latino Voters." *American Political Science Review*, 101(3):425-441. (17 pages)
- Canes-Wrone, Brandice, David Brady, and John Cogan. 2002. "Out of Step, Out of Office: Electoral Accountability and House Members' Voting." *American Political Science Review*, 96(1):127-140. (14 pages)
- Catalist. *What Happened in 2020*. <https://catalist.us/wh-national/> (15 pages)
- Catalist. *What Happened in 2022*. <https://catalist.us/whathappened2022/>. (15 pages)
- Chang, Keng-Chi, Chun-Fang Chiang, and Ming-Jen Lin. 2021. "Using Facebook Data to Predict the 2016 Presidential Election." *PloS ONE*, 16(12). (24 pages)
- Cramer Walsh, Katherine. 2012. "Putting Inequality in Its Place: Rural Consciousness and the Power of Perspective." *American Political Science Review*, 106(3):517-532. (16 pages)
- Cranmer, Skyler J., and Bruce A. Desmarais. "What can we learn from predictive modeling?." *Political Analysis* 25, no. 2 (2017): 145-166. (22 pages)
- Coppock, Alexander, Seth Hill, and Lynn Vavreck. 2020. "The Small Effects of Political Advertising Are Small Regardless of Context, Message, Sender, or Receiver: Evidence from 59 Real-Time Randomized Experiments." *Science Advances*, 6(36). (6 pages)
- Davenport, Lauren. 2016. "Beyond Black and White: Biracial Attitudes in Contemporary U.S. Politics." *American Political Science Review*, 110(1):52-67. (16 pages)
- de Jonge, CP Kiewiet, Gary Langer, and Sofi Sinozich. 2018. "Predicting State Presidential Election Results Using National Tracking Polls and Multilevel Regression with Poststratification (MRP)." *Public Opinion Quarterly*, 82(3): 419-446. (28 pages)
- Doherty et al. "Beyond Red vs. Blue: The Political Typology." Pew Research Center (2021). Overview and Appendix B. (13 pages) https://www.pewresearch.org/politics/wp-content/uploads/sites/4/2021/11/PP_2021.11.09_political-typology_REPORT.pdf
- Francia, Peter L., et al. "Limousine liberals and corporate conservatives: The financial constituencies of the democratic and republican parties." *Social Science Quarterly* 86.4 (2005): 761-778. (18 pages)
- Goren, Paul and Christopher Chapp. 2017. "Moral Power: How Public Opinion on Culture War Issues Shapes Partisan Dispositions and Religious Orientations." *American Political Science Review*, 110-128. (19 pages)
- Graefe, Andreas. 2021. "Of Issues and Leaders: Forecasting the 2020 U.S. Presidential Election." *PS: Political Science & Politics*, 54(1): 70-72. (3 pages)

Hall, Andrew and Daniel Thompson. 2018. "Who Punishes Extremist Nominees? Candidate Ideology and Turning Out the Base in U.S. Elections." *American Political Science Review*. 509-524. (15 pages)

Hall, Andrew and Jesse Yoder. 2022. "Does Homeownership Influence Political Behavior? Evidence from Administrative Data." *The Journal of Politics*, 84(1):351-366. (16 pages)

Healy, Andrew and Gabriel Lenz. 2017. "Presidential Voting and the Local Economy: Evidence from Two Population-Based Data Sets." *Journal of Politics*, 79(4):1419-1432. (13 pages)

Hindman, Matthew. "Building better models: Prediction, replication, and machine learning in the social sciences." *The Annals of the American Academy of Political and Social Science* 659, no. 1 (2015): 48-62 (15 pages)

Huberty, Mark. 2015. "Can We Vote with Our Tweet? On the Perennial Difficulty of Election Forecasting with Social Media." *International Journal of Forecasting*, 31(3):992-1007. (16 pages)

Jacobson, Gary. 1989. "Strategic Politicians and the Dynamics of U.S. House Elections, 1946-86." *American Political Science Review*, 83:773-793. (21 pages)

Jérôme, Bruno, Véronique Jérôme, Philippe Mongrain, and Richard Nadeau. 2021. "State-Level Forecasts of the 2020 US Presidential Election: Tough Victory Ahead for Biden." *PS: Political Science & Politics*, 54(1): 77-80. (4 pages)

Jones, Brad. "Behind Pew Research Center's 2021 political typology." *Medium* (2021). (4 pages)
<https://medium.com/pew-research-center-decoded/behind-pew-research-centers-2021-political-typology-d7631866aa21>

Junn, Jane and Natalie Masuoka. 2020. "The Gender Gap Is a Race Gap: Women Voters in U.S. Presidential Elections." *Perspectives on Politics*, 18(4):1135-1145. (11 pages)

Kinder, Donald and D. Roderick Kiewiet. 1981. "Sociotropic Politics: The American Case." *British Journal of Political Science*, 11(2):129-161. (32 pages)

Lee, David. 2008. "Randomized Experiments from Non-Random Selection in U.S. House Elections." *Journal of Econometrics*, 142:675-697. (23 pages).

Lopez-Martin, Juan, Justin Phillips, and Andrew Gelman. 2021. "Multilevel Regression and Poststratification Case Studies." (10 pages) <https://bookdown.org/jl5522/MRP-case-studies/>

Margolis, Michele. 2019. "Who Wants to Make America Great Again? Understanding Evangelical Support for Donald Trump." *Politics and Religion*, 13(1):89-118. (30 pages)

McAlexander, Richard J., and Lucas Mentch. "Predictive inference with random forests: A new perspective on classical analyses." *Research & Politics* 7, no. 1 (2020). (7 pages)

Montgomery, Jacob M., and Santiago Olivella. "Tree-Based Models for Political Science Data." *American Journal of Political Science* 62, no. 3 (2018): 729-744. (16 pages)

Nadeau, Richard, Ruth Dassonneville, Michael S. Lewis-Beck, and Philippe Mongrain. "Are election results more unpredictable? A forecasting test." *Political Science Research and Methods* 8, no. 4 (2020): 764-771. (8 pages)

Pew Research Center. "Partisan Identification Is 'Sticky,' but About 10% Switched Parties Over the Past Year." May 17, 2017. (10 pages) <https://www.pewresearch.org/politics/2017/05/17/partisan-identification-is-sticky-but-about-10-switched-parties-over-the-past-year/>

Roback, Paul and Julie Legler. 2020. "Ch. 8. Introduction to Multilevel Models" in *Beyond Multiple Linear Regression: Applied Generalized Linear Models and Multilevel Models* in R. Chapman and Hall/CRC Press. (20 pages) <https://bookdown.org/robback/bookdown-BeyondMLR/ch-multilevelintro.html>.

Smidt, C. D. (2017). Polarization and the decline of the American floating voter. *American Journal of Political Science*, 61(2), 365-381. (17 pages)

Timoneda, Joan and Erik Wibbels. 2022. "Spikes and Variance: Using Google Trends to Detect and Forecast Protests." *Political Analysis*, 30(1):1-18. (18 pages)

Wang, Wei, David Rothschild, Sharad Goel, and Andrew Gelman. 2015. "Forecasting Elections with Non-Representative Polls." *International Journal of Forecasting*, 31(3):980-991. (12 pages)

Yasseri, Taha and Jonathan Bright. 2014. "Can Electoral Popularity Be Predicted Using Socially Generated Big Data?" *Information Technology*, 56(5): 246-253. (8 pages)

Zolghadr, Mohammad, Seyed Armin Akhavan Niaki, and S. T. A. Niaki. 2018. "Modeling and Forecasting U.S. Presidential Elections Using Learning Algorithms." *Journal of Industrial Engineering International*, 14:491-500. (10 pages)

Other Useful References

Hadley Wickham and Garret Grolemund. *R for Data Science*. <https://r4ds.had.co.nz/index.html>.

Software

This course will be taught in R, which is free and open source. R can be run in Rstudio which can be downloaded using the instructions at this link: <https://www.rstudio.com/products/rstudio/download/#download>. Students should first download R, the language, using this link: <https://cran.rstudio.com>.

Assignments and Assessments

The following assignments will be required for students to complete throughout the course. Submission and grading information will be listed in Canvas.

Class Participation (10%) [L1, L2, L3, L4, L5] Students are expected to attend all class sessions, come to class on time, complete all assigned readings, and engage in class discussions. Please be prepared to discuss the readings every week. Relevant, respectful dialogue, thoughtful comments and active listening are all required as important elements of learning in a graduate environment. If students need to miss a class for any reason, please discuss the absence with the instructor in advance.

Problem Sets (60%) [L1, L2, L3, L4, L5] Students will complete four (4) problem sets over the course of the semester. Each problem set will count for 15% of the final grade. The problem sets will require students to apply the concepts and skills covered in the previous modules of the course. Each assignment will include 5-10 questions that require a mix of data cleaning, statistical coding, analysis, and written responses. The instructor will provide detailed instructions and examples for each assignment and relevant data sets to be used in the analysis on Canvas. The coding portions of the problem sets will be completed in R and additional questions should be answered in written form. Students are expected to complete the problem sets on their own and consult with their instructor or course associate if they have any questions. Each problem set is intended to take 3-4 hours to complete.

Final Project (30%) [L2, L3, L4, L5, L6] Students will work individually over the course of the semester to select an election (or other approved case) from the past, gather data about that election, its candidates, and its voters, and to utilize the techniques learned throughout the course to quantitatively describe and predict some aspect of the electoral outcome. Students may choose their own topic, but must write a short proposal first about their choice and obtain the instructor's approval before proceeding. Students will present their work during the final class period and will submit a 12- to 15-page write-up of their procedures and findings during finals week. This final project will count for 30% of student grades (5% for the proposal, 5% for the in-class presentation, and 20% for the final paper).

Grading

The final grade will be calculated as described below:

FINAL GRADING SCALE

Grade	Percentage
A+	98–100 %
A	93–97.9 %
A-	90–92.9 %
B+	87–89.9 %
B	83–86.9 %
B-	80–82.9 %
C+	77–79.9 %
C	73–76.9 %
C-	70–72.9 %
D	60–69.9 %
F	59.9% and below

Assignment/Assessment	% Weight	Individual or Group/Team Grade
Class Participation and Attendance	10%	Individual
Problem Set 1	15%	Individual

Problem Set 2	15%	Individual
Problem Set 3	15%	Individual
Problem Set 4	15%	Individual
Final Project Proposal	5%	Individual
Final Project Presentation	5%	Individual
Final Project Write-up	20%	Individual

Course Schedule

Date	Topics and Activities	Readings (read by class time, recommended readings are optional)	Assignments (due on this date)
Week 1 Class: 1/17/24	Course introductions Voter Turnout Voter File Data	Aldrich et al. (2023). "Chapter 4. Who Voted?" (34 pages) Hall, Andrew and Daniel Thompson. 2018. "Who Punishes Extremist Nominees? Candidate Ideology and Turning Out the Base in U.S. Elections." <i>American Political Science Review</i> . 509-524. (15 pages) Recommended: Catalist. <i>What Happened in 2020</i> . https://catalist.us/wh-national/ (15 pages) Catalist. <i>What Happened in 2022</i> . https://catalist.us/whathappened2022/ . (15 pages)	Questionnaire about student background and interests (1/17/24)
Week 2 Class: 1/24/24	Voting Decisions: Economics and Approval Ratings Sources of Economic Data (BLS, Census)	Aldrich et al. (2023) "Ch. 8. Presidential Performance and Candidate Choice" (26 pages) Kinder, Donald and D. Roderick Kiewiet. 1981. "Sociotropic Politics: The American Case." <i>British Journal of Political Science</i> , 11(2):129-161. (32 pages)	

		<p>Healy, Andrew and Gabriel Lenz. 2017. "Presidential Voting and the Local Economy: Evidence from Two Population-Based Data Sets." <i>Journal of Politics</i>, 79(4):1419-1432. (13 pages)</p> <p>Jérôme, Bruno, Véronique Jérôme, Philippe Mongrain, and Richard Nadeau. 2021. "State-Level Forecasts of the 2020 US Presidential Election: Tough Victory Ahead for Biden." <i>PS: Political Science & Politics</i>, 54(1): 77-80. (4 pages)</p>	
<p>Week 3</p> <p>Class: 1/31/24</p>	<p>Voting Decisions: Partisanship</p> <p>ANES, CCES, GSS</p>	<p>Aldrich et al. (2023). "Ch. 6. Party Loyalties and the Vote." (18 pages)</p> <p>Bafumi, Joseph and Robert Y. Shapiro. 2009. "A New Partisan Voter." <i>The Journal of Politics</i>, 71(1):1-24. (24 pages)</p> <p>Smidt, C. D. (2017). Polarization and the decline of the American floating voter. <i>American Journal of Political Science</i>, 61(2), 365-381. (17 pages)</p> <p>Recommended:</p> <p>Barber, Michael and Jeremy Pope. 2018. "Does Party Trump Ideology? Disentangling Party and Ideology in America." <i>American Political Science Review</i>, 113(1):38-54. (17 pages)</p> <p>Pew Research Center. "Partisan Identification Is 'Sticky,' but About 10% Switched Parties Over the Past Year." May 17, 2017. (10 pages) https://www.pewresearch.org/politics/2017/05/17/partisan-identification-is-sticky-but-about-10-switched-parties-over-the-past-year/</p>	<p>Problem Set 1 Due (2/4/24)</p>
<p>Week 4</p> <p>Class: 2/7/24</p>	<p>Voting Decisions: Voter Identities and Demographics</p> <p>Census Data</p>	<p>Aldrich et al. (2023). "Ch. 5. Social Forces and the Vote." (28 pages)</p> <p>Junn, Jane and Natalie Masuoka. 2020. "The Gender Gap Is a Race Gap: Women Voters in U.S. Presidential</p>	

		<p>Elections.” <i>Perspectives on Politics</i>, 18(4):1135-1145. (11 pages)</p> <p>Davenport, Lauren. 2016. “Beyond Black and White: Biracial Attitudes in Contemporary U.S. Politics.” <i>American Political Science Review</i>, 110(1):52-67. (16 pages)</p> <p>Cramer Walsh, Katherine. 2012. “Putting Inequality in Its Place: Rural Consciousness and the Power of Perspective.” <i>American Political Science Review</i>, 106(3):517-532. (16 pages)</p> <p>Recommended:</p> <p>Hall, Andrew and Jesse Yoder. 2022. “Does Homeownership Influence Political Behavior? Evidence from Administrative Data.” <i>The Journal of Politics</i>, 84(1):351-366. (16 pages)</p> <p>Margolis, Michele. 2019. “Who Wants to Make America Great Again? Understanding Evangelical Support for Donald Trump.” <i>Politics and Religion</i>, 13(1):89-118. (30 pages)</p>	
<p>Week 5</p> <p>Class: 2/14/24</p>	<p>The Electoral Environment: Candidates and Campaigns</p> <p>Campaign Finance Data</p>	<p>Aldrich et al. (2023). “Ch. 2. The General Election Campaign”. (18 pages)</p> <p>Jacobson, Gary. 1989. “Strategic Politicians and the Dynamics of U.S. House Elections, 1946-86.” <i>American Political Science Review</i>, 83:773-793. (21 pages)</p> <p>Lee, David. 2008. “Randomized Experiments from Non-Random Selection in U.S. House Elections.” <i>Journal of Econometrics</i>, 142:675-697. (23 pages).</p> <p>Recommended:</p>	

		<p>Barreto, Matt. 2007. "Si Se Puede! Latino Candidates and the Mobilization of Latino Voters." <i>American Political Science Review</i>, 101(3):425-441. (17 pages)</p> <p>Coppock, Alexander, Seth Hill, and Lynn Vavreck. 2020. "The Small Effects of Political Advertising Are Small Regardless of Context, Message, Sender, or Receiver: Evidence from 59 Real-Time Randomized Experiments." <i>Science Advances</i>, 6(36). (6 pages)</p>	
<p>Week 6</p> <p>Class: 2/21/24</p>	<p>Surveys: Policy and Ideology</p> <p>Roper Center Survey Data, ANES, CCES</p>	<p>Aldrich et al. (2023). "Ch. 7. Candidates, Issues, and the Vote". (28 pages)</p> <p>Canes-Wrone, Brandice, David Brady, and John Cogan. 2002. "Out of Step, Out of Office: Electoral Accountability and House Members' Voting." <i>American Political Science Review</i>, 96(1):127-140. (14 pages)</p> <p>Goren, Paul and Christopher Chapp. 2017. "Moral Power: How Public Opinion on Culture War Issues Shapes Partisan Dispositions and Religious Orientations." <i>American Political Science Review</i>, 110-128. (19 pages)</p> <p>Graefe, Andreas. 2021. "Of Issues and Leaders: Forecasting the 2020 U.S. Presidential Election." <i>PS: Political Science & Politics</i>, 54(1): 70-72. (3 pages)</p>	<p>Problem Set 2 Due (2/25/24)</p>
<p>Week 7</p> <p>Class: 2/28/24</p>	<p>Surveys: Horserace</p> <p>Roper Center Survey Data</p>	<p>AAPOR. 2021. <i>Task Force on 2020 Pre-Election Polling</i>. (61 pages) https://aapor.org/wp-content/uploads/2022/11/AAPOR-Task-Force-on-2020-Pre-Election-Polling-Report-FNL.pdf</p> <p>Armstrong, J. Scott, and Andreas Graefe. 2021. "The PollyVote Popular Vote Forecast for the 2020 U.S. Presidential Election." <i>PS: Political</i></p>	

		<p><i>Science & Politics</i>, 54(1): 96-98. (3 pages)</p> <p>Nadeau, Richard, Ruth Dassonneville, Michael S. Lewis-Beck, and Philippe Mongrain. "Are election results more unpredictable? A forecasting test." <i>Political Science Research and Methods</i> 8, no. 4 (2020): 764-771. (8 pages)</p> <p>Recommended:</p> <p>538. Polling Aggregation Methodology. (4 pages) https://abcnews.go.com/538/polling-averages-work/story?id=103232260.</p>	
<p>Week 8</p> <p>Class: 3/6/24</p>	<p>Surveys: Electoral Modeling with MRP</p>	<p>Roback, Paul and Julie Legler. 2020. "Ch. 8. Introduction to Multilevel Models" in <i>Beyond Multiple Linear Regression: Applied Generalized Linear Models and Multilevel Models in R</i>. Chapman and Hall/CRC Press. (20 pages) https://bookdown.org/robback/bookdown-BeyondMLR/ch-multilevelintro.html.</p> <p>Lopez-Martin, Juan, Justin Phillips, and Andrew Gelman. 2021. "Multilevel Regression and Poststratification Case Studies." (10 pages) https://bookdown.org/jl5522/MRP-case-studies/</p> <p>de Jonge, CP Kiewiet, Gary Langer, and Sofi Sinozich. 2018. "Predicting State Presidential Election Results Using National Tracking Polls and Multilevel Regression with Poststratification (MRP)." <i>Public Opinion Quarterly</i>, 82(3): 419-446. (28 pages)</p> <p>Recommended:</p> <p>Wang, Wei, David Rothschild, Sharad Goel, and Andrew Gelman. 2015. "Forecasting Elections with Non-Representative Polls." <i>International Journal of Forecasting</i>, 31(3):980-991. (12 pages)</p>	

Spring Recess: 3/10 - 3/16 No Class			
Week 9 Class: 3/20/24	Online Data: Social Media and Search Data	<p>Timoneda, Joan and Erik Wibbels. 2022. "Spikes and Variance: Using Google Trends to Detect and Forecast Protests." <i>Political Analysis</i>, 30(1):1-18. (18 pages)</p> <p>Yasseri, Taha and Jonathan Bright. 2014. "Can Electoral Popularity Be Predicted Using Socially Generated Big Data?" <i>Information Technology</i>, 56(5): 246-253. (8 pages)</p> <p>Huberty, Mark. 2015. "Can We Vote with Our Tweet? On the Perennial Difficulty of Election Forecasting with Social Media." <i>International Journal of Forecasting</i>, 31(3):992-1007. (16 pages)</p> <p>Recommended:</p> <p>Chang, Keng-Chi, Chun-Fang Chiang, and Ming-Jen Lin. 2021. "Using Facebook Data to Predict the 2016 Presidential Election." <i>PloS ONE</i>, 16(12). (24 pages)</p>	Problem Set 3 Due (3/24/24)
Week 10 Class: 3/27/24	Machine Learning I - Intro Going Beyond Regression Supervised vs. Unsupervised	<p>James et. al. <i>An Introduction to Statistical Learning</i>, Chap 2, 4.1 - 4.3, 4.6. (20 pages)</p> <p>Cranmer, Skyler J., and Bruce A. Desmarais. "What can we learn from predictive modeling?" <i>Political Analysis</i> 25, no. 2 (2017): 145-166. (22 pages)</p>	
Week 11	Machine Learning II Lasso/Ridge	James et. al. <i>An Introduction to Statistical Learning</i> , Chap 6, 6.1 - 6.4. (41 pages).	

<p>Class: 4/3/24</p>	<p>Dimension Reduction</p>	<p>Hindman, Matthew. "Building better models: Prediction, replication, and machine learning in the social sciences." <i>The Annals of the American Academy of Political and Social Science</i> 659, no. 1 (2015): 48-62 (15 pages)</p> <p>Recommended:</p> <p>Zolghadr, Mohammad, Seyed Armin Akhavan Niaki, and S. T. A. Niaki. 2018. "Modeling and Forecasting U.S. Presidential Elections Using Learning Algorithms." <i>Journal of Industrial Engineering International</i>, 14:491-500. (10 pages)</p>	
<p>Week 12 Class: 4/10/24</p>	<p>Machine Learning III Tree-based Methods Bagging, Random Forests, Boosting</p>	<p>James et. al. <i>An Introduction to Statistical Learning</i>, Chap. 8, 8.1 - 8.3. (34 pages)</p> <p>Montgomery, Jacob M., and Santiago Olivella. "Tree-Based Models for Political Science Data." <i>American Journal of Political Science</i> 62, no. 3 (2018): 729-744. (16 pages)</p> <p>McAlexander, Richard J., and Lucas Mentch. "Predictive inference with random forests: A new perspective on classical analyses." <i>Research & Politics</i> 7, no. 1 (2020). (7 pages)</p>	<p>Problem Set 4 Due (4/14/24)</p>
<p>Week 13 Class: 4/17/24</p>	<p>Unsupervised Learning Cluster Analysis</p>	<p>James et. al. <i>An Introduction to Statistical Learning</i>, Chap. 12, 12.1 - 12.4. (34 pages)</p> <p>Francia, Peter L., et al. "Limousine liberals and corporate conservatives: The financial constituencies of the democratic and republican parties." <i>Social Science Quarterly</i> 86.4 (2005): 761-778. (18 pages)</p> <p>Recommended:</p> <p>Doherty et al. "Beyond Red vs. Blue: The Political Typology." <i>Pew Research</i></p>	

		<p><i>Center</i> (2021). Overview and Appendix B. (13 pages) https://www.pewresearch.org/politics/wp-content/uploads/sites/4/2021/11/PP_2021.11.09_political-typology_REPORT.pdf</p> <p>Jones, Brad. "Behind Pew Research Center's 2021 political typology." <i>Medium</i> (2021). (4 pages) https://medium.com/pew-research-center-decoded/behind-pew-research-centers-2021-political-typology-d7631866aa21</p>	
Week 14 Class: 4/24/24	Final Project Presentations		<p>Research Presentation due in class (4/24/24)</p> <p>Final papers due 5/5/24</p>

Course Policies

Participation and Attendance

I expect you to come to class on time and thoroughly prepared. I will keep track of attendance and look forward to an interesting, lively and confidential discussion. If you miss an experience in class, you miss an important learning moment and the class misses your contribution. More than one absence will affect your grade, lowering your class grade by 1/3 of a grade for every additional absence after the first (e.g., from a B+ to a B).

Late work

Work that is not submitted on the due date noted in the course syllabus without advance notice and permission from the instructor will be graded down 1/3 of a grade for every day it is late (e.g., from a B+ to a B).

Citation & Submission

All written assignments must use standard citation format (e.g., MLA) and cite sources. All assignments must be submitted to the course website (not via email).

School and University Policies and Resources

Copyright Policy

Please note—Due to copyright restrictions, online access to this material is limited to instructors and students currently registered for this course. Please be advised that by clicking the link to the electronic materials in this course, you have read and accept the following:

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specified conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user makes a request for, or later uses, a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement.

Academic Integrity

Columbia University expects its students to act with honesty and propriety at all times and to respect the rights of others. It is fundamental University policy that academic dishonesty in any guise or personal conduct of any sort that disrupts the life of the University or denigrates or endangers members of the University community is unacceptable and will be dealt with severely. It is essential to the academic integrity and vitality of this community that individuals do their own work and properly acknowledge the circumstances, ideas, sources, and assistance upon which that work is based. Academic honesty in class assignments and exams is expected of all students at all times.

SPS holds each member of its community responsible for understanding and abiding by the SPS Academic Integrity and Community Standards posted at <https://sps.columbia.edu/students/student-support/academic-integrity-community-standards>. You are required to read these standards within the first few days of class. Ignorance of the School's policy concerning academic dishonesty shall not be a defense in any disciplinary proceedings.

Diversity Statement

It is our intent that students from all diverse backgrounds and perspectives be well-served by this course, that students' learning needs be addressed both in and out of class, and that the diversity that the students bring to this class be viewed as a resource, strength and benefit. It is our intent to present materials and activities that are respectful of diversity: gender identity, sexuality, disability, age, socioeconomic status, ethnicity, race, nationality, religion, and culture.

Accessibility

Columbia is committed to providing equal access to qualified students with documented disabilities. A student's disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University's Health Services website: <https://health.columbia.edu/content/disability-services>.

Class Recordings

All or portions of the class may be recorded at the discretion of the Instructor to support your learning. At any point, the Instructor has the right to discontinue the recording if it is deemed to be obstructive to the learning process.

If the recording is posted, it is confidential and it is prohibited to share the recording outside of the class.

SPS Academic Resources

The Division of Student Affairs provides students with academic counseling and support services such as online tutoring and career coaching: <https://sps.columbia.edu/students/student-support/student-support-resources>.

Columbia University Information Technology

[Columbia University Information Technology](#) (CUIT) provides Columbia University students, faculty and staff with central computing and communications services. Students, faculty and staff may access [University-provided and discounted software downloads](#).

Columbia University Library

[Columbia's extensive library system](#) ranks in the top five academic libraries in the nation, with many of its services and resources available online.

The Writing Center

The Writing Center provides writing support to undergraduate and graduate students through one-on-one consultations and workshops. They provide support at every stage of your writing, from brainstorming to final drafts. If you would like writing support, please visit the following site to learn about services offered and steps for scheduling an appointment. This resource is open to Columbia graduate students at no additional charge. Visit <http://www.college.columbia.edu/core/uwp/writing-center>.

Career Design Lab

The Career Design Lab supports current students and alumni with individualized career coaching including career assessment, resume & cover letter writing, agile internship job search strategy, personal branding, interview skills, career transitions, salary negotiations, and much more. Wherever you are in your career journey, the Career Design Lab team is here to support you. Link to <https://careerdesignlab.sps.columbia.edu/>

Netiquette

[Only applies to courses using online platforms]

Online sessions in this course will be offered through Zoom, accessible through Canvas. A reliable Internet connection and functioning webcam and microphone are required. It is your responsibility to resolve any known technical issues prior to class. Your webcam should remain turned on for the duration of each class, and you should expect to be present the entire time. Avoid distractions and maintain professional etiquette.

Please note: Instructors may use Canvas or Zoom analytics in evaluating your online participation.

More guidance can be found at: https://jolt.merlot.org/vol6no1/mintu-wimsatt_0310.htm

Netiquette is a way of defining professionalism for collaborations and communication that take place in online environments. Here are some Student Guidelines for this class:

- Avoid using offensive language or language that is not appropriate for a professional setting.
- Do not criticize or mock someone's abilities or skills.
- Communicate in a way that is clear, accurate and easy for others to understand.
- Balance collegiality with academic honesty.
- Keep an open-mind and be willing to express your opinion.
- Reflect on your statements and how they might impact others.
- Do not hesitate to ask for feedback.
- When in doubt, always check with your instructor for clarification.