

F. Wendell Miller Professor Sara Mitchell

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Drop in Hours: Tuesday, 3:00-4:30pm, Wednesday 10:30am-12:00pm or by appointment

Zoom Office Hours: by appointment

Many of the data sets that social scientists analyze are organized over time including leader approval, GDP per capita, homicide rates, and political violence. While many of the tools that students learn in regression courses are useful for analyzing time series data, there are several unique properties of time series data that must be understood before working with such data. This course provides an introduction to methods of time series analysis, building upon students' background knowledge in statistical inference and regression analysis. We begin with basic descriptive methods for viewing time series data and then talk about stationarity assumptions and how violations of these assumptions threaten inferences in regression analyses of time series data. Students will also learn about autoregressive integrated moving average (ARIMA) models, including autocorrelation (ACF) and partial autocorrelation (PACF) functions. We will review several statistical tests for unit roots, serial correlation, and normality. Students will be introduced to OLS time series models, such as the autoregressive distributed lag (ADL) model. We will also learn about modeling interventions in time series data. More advanced models that will be covered include cointegration, error correction models (ECM), vector autoregression (VAR) models, and time varying parameter models. In addition to learning about tests and models for single time series, the course will introduce students to pooled time series models including panel unit root tests and models that capture fixed or random effects.

Each student is expected to attend all class meetings and to have completed all required readings prior to each class. Students who need accommodation for taking the class online should register with SDS and contact the instructor. The course grade is calculated based on homework assignments, an exam, an online presentation, and application essays.

1) Homework Assignments (35%)

You will complete several homework assignments throughout the semester (submitted via ICON). I will provide sample STATA code for each assignment. I also have sample code for R, although I am not a user of the program myself and thus cannot provide much guidance.

2) Final Exam (25%)

The final exam will be taken on ICON during finals week. The exam will be comprehensive and includes multiple choice, short answer, and essay questions.

3) Online Presentation (30%)

Choose a research question in your area of interest that involves some type of time series data (preferably single time series but talk to me if you want to use pooled data). You will present your research as a slide show at the end of the semester to your classmates and other attendees from the political science department on Zoom. The presentation should identify your research question, identify one or more hypotheses to be tested (along with a causal story linking your variables), describe your research design, and present your empirical results. I expect the following empirical components in your presentation: a) descriptive analysis of your data (plotting the data, ACF, PACF, ARIMA models, tests for stationarity, etc.) and b) some type of multivariate time series analysis (regression, ECM, VAR, ARFIMA, etc.). The presentation will be judged both for its substantive content and its aesthetic qualities. I take into consideration the difficulty level of your methodological approach for your final grade. You must submit a copy of your presentation materials on ICON by December 8th.

4) Applications (10%)

Each student will be assigned to discuss three articles that utilize the time series methods we are learning in class. For each application paper, the student will type a 1-2 page paper a) summarizing the method, b) describing how it is applied, and c) discussing any potential problems with the particular application of the method. Applications are submitted via ICON and are due prior to the start of class on the due date.

Box-Steffensmeier, Janet M., John R. Freeman, Matthew P. Hitt, and Jon C.W. Pevehouse (BFHP). 2014. *Time Series Analysis for the Social Sciences*. Cambridge University Press.
Enders, Walter. 2014. *Applied Econometric Time Series, 4th Edition*. New York, NY: Wiley.
Assigned articles (marked with *) will be available on ICON.

Arellano, Manuel. 2003. *Panel Data Econometrics*. New York, NY: Oxford University Press.
Banerjee, Anindya, Juan Dolado, J.W. Galbraith, and David F. Hendry. 1993. *Co-integration, Error Correction, and the Econometric Analysis of Non-Stationary Data*. Oxford: Oxford University Press.
Baltagi, Badi H. 2013. *Econometric Analysis of Panel Data, 5th Edition*. New York, NY: Wiley.
Baltagi, Badi H. ed., 2015. *The Oxford handbook of panel data*. New York, NY: Oxford University Press.
Box, George E.P., Gwilym M. Jenkins, and Gregory C. Reinsel. 2008. *Time Series Analysis: Forecasting and Control*. Wiley.
Castle, Jennifer, Michael Clements, and David Hendry. 2019. *Forecasting: An Essential Introduction*. New Haven, CT: Yale University Press.
Chatfield, Christopher. 2003. *The Analysis of Time Series: An Introduction, Sixth Edition*. New York: Chapman and Hall.
Choi, Im. 2015. *Almost All About Unit Roots: Foundations, Developments, and Applications*. New York: Cambridge University Press.
Cowpervait, Paul S. and Andrew V. Metcalfe. 2009. *Introductory Time Series with R*. New York: Springer Texts in Statistics.

- Cromwell, Jeff B., Michael J. Hannan, Walter C. Labys, and Michel Terraza. 1994. *Multivariate Tests for Time Series Models* (Sage University Paper series on Quantitative Applications in the Social Sciences, 07-100). Thousand Oaks, CA: Sage.
- Cryer, Jonathan D. and Kung-Sik Chan. 2010. *Time Series Analysis with Applications in R*. Springer.
- Davidson, Russell, and James G. MacKinnon. 1993. *Estimation and Inference in Econometrics*. Oxford: Oxford University Press.
- Engle, Robert F. and C.W.J. Granger (eds.). 1992. *Long-Run Economic Relationships: Readings in Cointegration*. Oxford: Oxford University Press.
- Granger, C.W.J. 1991. *Modelling Economic Series*. Oxford: Oxford University Press.
- Granger, C.W.J. and Paul Newbold. 1986. *Forecasting Economic Time Series (Second Edition)*. San Diego, CA: Academic Press.
- Gujarati, Damodar and Dawn Porter. 2009. *Basic Econometrics*, 5th Edition. Boston, MA: McGraw-Hill Irwin.
- Hamilton, James D. 1994. *Time Series Analysis*. Princeton, New Jersey: Princeton University Press.
- Harvey, Andrew. 1989. *Forecasting, Structural Time Series Models and the Kalman Filter*. Cambridge: Cambridge University Press.
- Harvey, Andrew. 1993. *Time Series Models (Second Edition)*. Cambridge: MIT Press.
- Hendry, David F. 1995. *Dynamic Econometrics*. Oxford: Oxford University Press.
- Hsiao, Cheng. 2014. *Analysis of Panel Data*. 3rd Edition. New York, NY: Cambridge University Press.
- Huckfeldt, R. Robert, C.W. Kohfeld, and T.W. Likens. 1982. *Dynamic Modeling: An Introduction*. Beverly Hills, CA: Sage.
- Kellstedt, Paul and Guy Whitten. 2019. *The Fundamentals of Political Science Research*, 3rd Edition. New York, NY: Cambridge University Press.
- Leamer, Edward E. 1978. *Specification Searches: Ad Hoc Inference with Nonexperimental Data*. New York: Wiley.
- Lütkepohl, Helmut. 2010. *New Introduction to Multiple Time Series Analysis*. Springer.
- McCleary, Richard and Richard A. Hay, Jr. 1980. *Applied Time Series Analysis for the Social Sciences*. Beverly Hills: Sage.
- McDowall, David, Richard McCleary, Errol E. Meidinger, and Richard A. Hay, Jr. 1980. *Interrupted Time Series Analysis*. Sage University Paper series on Quantitative Applications in the Social Sciences, series no. 07-021. Beverly Hills: Sage.
- McDowall, David, Richard McCleary, and Bradley Bartos. 2019. *Interrupted Time Series Analysis*. New York, NY: Oxford University Press.
- Mills, Terrence C. and Raphael N. Markellos. 2008. *The Econometric Modelling of Financial Times Series*, 3rd edition. Cambridge: Cambridge University Press.
- Mills, Terrence C. 1990. *Time Series Techniques for Economists*. Cambridge: Cambridge University Press.
- Ostrom, Charles W. 1990. *Time Series Analysis: Regression Techniques*. Beverly Hills, CA: Sage.
- Pickup, Mark. 2014. *Introduction to Time Series Analysis*. Sage.
- Pindyck, R.S. and D.L. Rubinfeld. 1991. *Econometric Models and Economic Forecasts*, Third Edition. New York: McGraw-Hill.

- Sayrs, Lois W. 1989. *Pooled Time Series Analysis*. Sage University Paper series on Quantitative Applications in the Social Sciences, series no. 07-070. Sage.
- Shumway, Robert H. and David S. Stoffer. 2011. *Time Series Analysis and Its Applications with R Examples*, 3rd edition. New York: Springer Texts in Statistics.
- Tsay, Ruey S. 2010. *Analysis of Financial Time Series*. New York: Wiley.
- Wooldridge, Jeffrey. 2009. *Introductory Econometrics: A Modern Approach*, 4th Edition. South-Western College Publishing.

Week 1: Introduction to Time Series

Required Reading

- BFHP, Chapter 1
Enders, Chapter 1 (sections 1-6 and 9)

Recommended Reading

- Mills, Terrence C. 1990. *Time Series Techniques for Economists*. Cambridge: Cambridge University Press.
- Mills, Terrence C. and Raphael N. Markellos. 2008. *The Econometric Modelling of Financial Times Series*, 3rd edition. Cambridge: Cambridge University Press.
- Shellman, Stephen M. 2004. "Time Series Intervals and Statistical Inference: The Effects of Temporal Aggregation on Event Data Analysis." *Political Analysis* 12(1): 97-104.

Week 2: Regression over Time

Required Reading

- Kellstedt, Paul and Guy Whitten. 2019. "Chapter 9: Two Variable Regression Models." *The Fundamentals of Political Science Research*, 3rd Edition. New York, NY: Cambridge University Press.
- Gujarati, Damodar and Dawn Porter. 2009. "Chapter 12: Autocorrelation: What happens If the Error Terms Are Correlated?" *Basic Econometrics*, 5th Edition. Boston, MA: McGraw-Hill Irwin.

Recommended Reading

- Kellstedt, Paul and Guy Whitten. 2019. "Chapter 10: Multiple Regression – The Basics." *The Fundamentals of Political Science Research*, 3rd Edition. New York, NY: Cambridge University Press.
- Bailey, Michael. 2016. "Chapter 13: Time Series – Dealing with Stickiness over Time." *Real Stats: Using Econometrics for Political Science and Public Policy*. New York, NY: Oxford University Press. (p.449-462)
- Wooldridge (2009), Chapters 10-12

Week 3: Stationarity and Univariate Tests, Introduction to ARIMA

Required Reading

- BFHP, Chapter 5 (see also the Appendix)
Enders, Chapter 2, pp. 47-79, Chapter 4, pp. 181-215

Recommended Reading

- Bailey, Michael. 2016. "Chapter 13: Time Series – Dealing with Stickiness over Time." *Real Stats: Using Econometrics for Political Science and Public Policy*. New York, NY: Oxford University Press. (p.465-476)

- Cowpertwait, Paul S. and Andrew V. Metcalfe. 2009. *Introductory Time Series with R*. New York: Springer Texts in Statistics. Chapters 3 and 6.
- Cromwell, Jeff B., Walter C. Labys, and Michel Terraza. 1994. *Univariate Tests for Time Series Models*. Beverly Hills, CA: Sage, pp. 1-36.
- Davidson and MacKinnon (1993), Chapter 10
- Durbin, J. and G.S. Watson. 1950. "Testing for Serial Correlation in Least Squares Regression I." *Biometrika* 37(3-4): 409-428.
- Durbin, J. and G.S. Watson. 1951. "Testing for Serial Correlation in Least Squares Regression II." *Biometrika* 38(1-2): 159-178.
- Granger and Newbold (1986), Chapters 1, 3, & 5
- Gujarati, Damodar and Dawn Porter. 2009. "Chapter 21: Time Series Econometrics: Some Basic Concepts." *Basic Econometrics*, 5th Edition. Boston, MA: McGraw-Hill Irwin.
- Hamilton (1994), Chapters 1-3, 15-17
- Jarque, Carlos M. and Anil K. Bera. 1980. "Efficient Tests for Normality, Homoscedasticity, and Serial Independence of Regression Residuals." *Economic Letters* 6(3): 255-259.
- McCleary and Hay (1980)
- McDowall et al (1980), pages 1-54
- Mills, Terrence C. 1990. *Time Series Techniques for Economists*. Cambridge: Cambridge University Press. Chapters 5, 7-8, and 10.
- Mills, Terrence C. and Raphael N. Markellos. 2008. *The Econometric Modelling of Financial Times Series, 3rd edition*. Cambridge: Cambridge University Press. Chapter 2-3.
- Phillips, P.C.B. 1987. "Time Series with a Unit Root." *Econometrica* 55: 277-301.
- Phillips, P.C.B. and P. Perron. 1988. "Testing for a Unit Root in Time Series Regression." *Biometrika* 75(2): 335-346.
- Shumway, Robert H. and David S. Stoffer. 2011. *Time Series Analysis and Its Applications with R Examples*, 3rd edition. New York: Springer Texts in Statistics. Chapter 3.

Week 4: Autoregressive Integrated Moving Average (ARIMA) Models

Required Reading

- Enders, Chapter 2, pp. 79-102
- BFHP, Chapter 2, pp. 22-58; Chapter 7, pp. 187-205

Applications

- *Li, R.P. 1976. "A Dynamic Comparative Analysis of Presidential and House Elections." *American Journal of Political Science* 20(4): 671-691.
- *Zhu, Y., Wang, Y., Liu, T. et al. 2018. "Assessing Macroeconomic Recovery after a Natural Hazard Based on ARIMA—a Case Study of the 2008 Wenchuan Earthquake in China." *Natural Hazards* 91 1025–1038.

Recommended Reading

- Brandt and Williams, Chapter 1
- Granger and Newbold (1986), Chapter 5
- Hamilton (1994), Chapter 3
- McCleary and Hay (1980)
- Mills (1990), Chapter 7, 8, 10
- McDowall et al (1980), pages 1-54

Week 5: ARCH/GARCH Models

Required Reading

BFHP, Chapter 7, pp. 181-187

Enders, Chapter 3

Applications

*Leblang, David and Bumba Mukherjee. 2004. "Presidential Elections and the Stock Market: Comparing Markov-Switching and Fractionally Integrated GARCH Models of Volatility." *Political Analysis* 12(3): 296-322.

*Chau, Frankie, Rataporn Deesomsak, and Jun Wang. 2014. "Political Uncertainty and Stock Market Volatility in the Middle East and North African (MENA) Countries." *Journal of International Financial Markets, Institutions & Money* 28: 1-19.

*Webb, Clayton. 2020. "Re-Examining the Costs of Sanctions and Sanctions Threats using Stock Market Data." Forthcoming, *International Interactions*.

Recommended Reading

Box, George and Douglas Pierce. 1970. "Distribution of Residual Autocorrelations in Autoregressive-integrated Moving Average Time Series Models." *Journal of the American Statistical Association* 65(332): 1509-1526.

Brehm, John and Paul Gronke. 2002. "History, Heterogeneity, and Presidential Approval: A Modified ARCH Approach." *Electoral Studies* 21(3): 425-452.

Chow, Gregory. 1960. "Tests of Equality between Sets of Coefficients in Two Linear Regressions." *Econometrica* 28(3): 591-605.

Dufour, Jean-Marie. 1982. "Recursive Stability Analysis of Linear Regression Relationships." *Journal of Econometrics* 19(1): 31-76.

Engle, Robert F. 1982. "Autoregressive Conditional Heteroscedasticity with Estimates of the Variance of United Kingdom Inflation." *Econometrica* 50(4): 987-1007.

Engle, Robert F. 2001. "The Use of ARCH/GARCH Models in Applied Econometrics." *Journal of Economic Perspectives* 15(4): 157-168.

Hansen, Bruce E. 2001. "The New Econometrics of Structural Change: Dating Breaks in U.S. Labor Productivity." *Journal of Economic Perspectives* 15(4): 117-128.

Harvey (1989, 1993)

Hays, Judith C., John R. Freeman, and Hans Nesseth. 2003. "Exchange Rate Volatility and Democratization in Emerging Market Countries." *International Studies Quarterly* 47(2): 203-288.

Jensen, Nathan M. and Scott Schmith. 2005. "Market Responses to Politics: The Rise of Lula and the Decline of the Brazilian Stock Market." *Comparative Political Studies* 38(10): 1245-1270.

Maddala, G.S. and In-Moo Kim. 2000. *Unit Roots, Cointegration, and Structural Change*. New York: Cambridge University Press.

Maestas, Cherie and Robert R. Preuhs. 2000. "Modeling Volatility in Political Time Series." *Electoral Studies* 19(1): 95-110.

Western, Bruce and Meredith Kleykamp. 2004. "A Bayesian Change Point Model for Historical Time Series Analysis." *Political Analysis* 12(4): 354-374.

White, Halbert. 1980. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48(4): 817-838.

Week 6: Intervention/Transfer Function Analysis & Synthetic Control

Required Reading

BFHP, Chapter 2, pp. 58-67

Enders, Chapter 2, pp. 102-108

*Abadie, Alberto, Alexis Diamond & Jens Hainmueller. 2010. "Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program." *Journal of the American Statistical Association*, 105(490): 493-505.

Applications

*MacKuen, Michael B., Robert S. Erikson, and James A. Stimson. 1989. "Macropartisanship." *American Political Science Review* 83(4): 1125-1142.

*Ringquist, Evan J. 1995. "Political Control and Policy Impact in EPA's Office of Water Quality." *American Journal of Political Science* 39(2): 336-363.

*Rasler, Karen. 1986. "War, Accommodation, and Violence in the United States, 1890-1970." *American Political Science Review* 80(3): 921-945.

Recommended Reading

Box, G.E.P. and G.C. Tiao. 1975. "Intervention Analysis with Applications to Economic and Environmental Problems." *Journal of the American Statistical Association* 70(1): 70-79.

Carmines, Edward G. and James A. Stimson. 1986. "On the Structure and Sequence of Issue Evolution." *American Political Science Review* 80(3): 901-920.

Green, Donald, Bradley Palmquist, and Eric Schickler. 1998. "Macropartisanship: A Replication and Critique." *American Political Science Review* 92(4): 883-899.

Hibbs, Douglas A. Jr. 1977. "Political Parties and Macroeconomic Policy." *American Political Science Review* 71(4): 1467-1479.

Hibbs, Douglas A. Jr. 1977. "On Analyzing the Effects of Policy Interventions: Box-Jenkins and Box-Tiao vs. Structural Equation Models." *Sociological Methodology* 8: 137-179.

Lewis-Beck, Michael S. 1986. "Interrupted Time Series" pages 209-240 in William D. Berry and Michael S. Lewis-Beck (eds.), *New Tools for Social Scientists: Advances and Applications in Research Methods*. Beverly Hills: Sage.

Lewis-Beck, Michael S. and John R. Alford. 1980. "Can Government Regulate Safety? The Coal Mine Example." *American Political Science Review* 74(3): 745-756.

Monroe, Kristen R. 1981. "Presidential Popularity: An Almon Distributed Lag Model." *Political Methodology* 7(1): 43-69.

Moe, Terry M. 1982. "Regulatory Performance and Presidential Administration." *American Journal of Political Science* 26(2): 197-224.

Norpoth, Helmut. 1986. "Transfer Function Analysis," pages 241-273 in William D. Berry and Michael S. Lewis-Beck (eds.), *New Tools for Social Scientists*. Beverly Hills: Sage.

Oppenheimer, Bruce I., James A. Stimson, and Richard W. Waterman. 1986. "Interpreting U.S. Congressional Elections: The Exposure Thesis." *Legislative Studies Quarterly*, 11(2): 227-247.

Wood, B. Dan. 1988. "Principals, Bureaucrats, and Responsiveness in Clean Air Enforcements." *American Political Science Review* 82(1): 213-234.

Week 7: Dynamic Regression Models & Distributed Lag Models

Required Reading

BFHP, Chapter 3

*De Boef, Suzanna and Luke Keele. 2008. "Taking Time Seriously." *American Journal of Political Science* 52(1): 184-200.

*Keele, Luke and Nathan Kelly. 2006. "Dynamic Models for Dynamic Theories: The Ins and Outs of Lagged Dependent Variables." *Political Analysis*. 14:186-205.

Applications

*Box-Steffensmeier, Janet M, Suzanna de Boef, and Tse-min Lin. 2004. "The Dynamics of the Partisan Gender Gap." *American Political Science Review* 98(3): 515-528.

*Goodliffe, Jay and Darren Hawkins. 2017. "Dependence Networks and the Diffusion of Domestic Political Institutions." *Journal of Conflict Resolution* 61(5): 903-929.

*Makun, Keshmeer. 2017. "Trade Openness and Economic Growth in Malaysia: Some Time-series Analysis." *Foreign Trade Review* 52(3): 157-170.

Recommended Reading

Beck, Nathaniel. 1985. "Estimating Dynamic Models is Not Merely a Matter of Technique." *Political Methodology*. 11:71-89.

Box-Steffensmeier, Janet M. and Tse-min Lin. 1996. "A Dynamic Model of Campaign Spending in Congressional Elections." *Political Analysis* 6(1): 37-66.

Brandt, Patrick T. and John R. Freeman. 2009. "Modeling Macro-Political Dynamics." *Political Analysis* 17(2): 113-142.

Brophy-Baermann, Bryan and John A.C. Conybeare. 1994. "Retaliating Against Terrorism: Rational Expectations and the Optimality of Rules versus Discretion." *American Journal of Political Science* 38(1): 196-210.

Burkhart, Ross E. and Michael S. Lewis-Beck. 1994. "Comparative Democracy: The Economic Development Thesis." *American Political Science Review* 88(4): 903-910.

Davidson and MacKinnon (1993), Chapter 10.

Durbin, J. and G.S. Watson. 1950. "Testing for Serial Correlation in Least Squares Regression I." *Biometrika* 37(3-4): 409-428.

Granger and Newbold (1986), Chapter 5.

Hamilton, James (1994). Chapter 8.

Hibbs, Douglas. 1974. "Problems of Statistical Estimation and Causal Inference in Time-Series Regression Models." *Sociological Methodology*. 252-307.

Jarque, Carlos M. and Anil K. Bera. 1980. "Efficient Tests for Normality, Homoscedasticity, and Serial Independence of Regression Residuals." *Economic Letters* 6(3): 255-259.

Lewis-Beck, Michael S. and John R. Alford. 1980. "Can Government Regulate Safety? The Coal Mine Example." *American Political Science Review* 74(3): 745-756.

Linn, Suzanna and Clayton Webb. 2020. "A Principled Approach to Time Series Analysis." In *The SAGE Handbook of Research Methods in Political Science and International Relations*, First Edition. Edited by Luigi Curini and Robert Franzese. pp. 600-615. Los Angeles: Sage Reference.

Ostrom, Charles W., Jr. and Robin F. Marra. 1986. "U.S. Defense Spending and the Soviet Estimate." *American Political Science Review* 80(3): 819-842.

Ravines, Romy R., Alexandra M. Schmidt, and Helio S. Migon. 2006. "Revisiting Distributed Lag Models Through a Bayesian Perspective." *Applied Stochastic Models in Business and Industry* 22:193-210.

Week 8: Panel Unit Root Tests and Near/Fractional Integration

Required Reading

BHFP, Chapter 7, pp. 173-181

Enders, Chapter 4, pp. 215-247

*De Boef, Suzanna and Jim Granato. 1997. "Near-Integrated Data and the Analysis of Political Relationships." *American Journal of Political Science* 41(2): 619-640.

*Box-Steffensmeier, Janet M. and Renee M. Smith. 1998. "Investigating Political Dynamics Using Fractional Integration Methods." *American Journal of Political Science* 42(2): 661-689.

Applications

*Byers, David, James Davidson, and David Peel. 2000. "The Dynamics of Aggregate Political Popularity: Evidence from Eight Countries." *Electoral Studies* 19 (1) 49-62.

*Lee, Chien Chiang and Jun-De Lee. 2009. "Income and CO₂ Emissions: Evidence from Panel Unit Root and Cointegration Tests." *Energy Policy* 37: 413-423.

*Donovan, Kathleen, Paul M. Kellstedt, Ellen M. Key, and Matthew J. Lebo. 2019. "Motivated Reasoning, Public Opinion, and Presidential Approval." Forthcoming, *Political Behavior*.

Recommended Reading

Box-Steffensmeier, Janet M. and Andrew R. Tomlinson. 2000. "Fractional Integration Methods in Political Science." *Electoral Studies* 19(1): 63-76.

Cowpertwait, Paul S. and Andrew V. Metcalfe. 2009. *Introductory Time Series with R*. New York: Springer Texts in Statistics. Chapter 8, Long Memory Processes.

Helgason, Agnar Freyr. 2016. "Fractional Integration Methods and Short Time Series: Evidence from a Simulation Study." *Political Analysis* 24(1): 59-68.

Lebo, Matthew J., Robert W. Walker and Harold D. Clarke. 2000. "You Must Remember This: Dealing with Long Memory in Political Analyses." *Electoral Studies* 19: 31-48.

Levin, Andrew, Chien-Fu Lin, Chia-Shang James Chu. 2002. "Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties." *Journal of Econometrics* 108(May): 1-24.

Phillips, P.C.B. 1987. "Time Series with a Unit Root." *Econometrica* 55: 277-301.

Phillips, P.C.B. and P. Perron. 1988. "Testing for a Unit Root in Time Series Regression." *Biometrika* 75(2): 335-346.

Webb, Clayton, Suzanna Linn, and Matt Lebo. 2020. "Beyond the Unit Root Question: Uncertainty and Inference." *American Journal of Political Science* 64(2): 275-292.

Week 9: Cointegration and Error Correction Models, Part I

Required Reading

BFHP, Chapter 6

Enders, Chapter 6

Applications

*Caldeira, Gregory A. and Christopher J.W. Zorn. 1998. "Of Time and Consensual Norms in the Supreme Court." *American Journal of Political Science* 42(3): 874-902.

*Enns, Peter K. 2014. "The Public's Increasing Punitiveness and Its Influence on Mass Incarceration in the United States." *American Journal of Political Science* 58(4): 857-872.

*Rickard, Stephanie J. and Teri L. Caraway. 2019. "International Demands for Austerity: Examining the Impact of the IMF on the Public Sector." *The Review of International Organizations* 14(1): 35-57.

Recommended Reading

- Adam, Christopher. 1991. "Financial Innovation and the Demand for ξ M3 in the UK: 1975-1986." *Oxford Bulletin of Economics and Statistics* 53(4): 401-424.
- Banerjee, Anindya, Juan Dolado, J.W. Galbraith, and David F. Hendry. 1993. *Co-integration, Error Correction, and the Econometric Analysis of Non-Stationary Data*. Oxford: Oxford University Press. Chapter 2.
- Beck, Nathaniel. 1993. "The Methodology of Cointegration." *Political Analysis* 4(1): 237-248.
- Clarke, Harold D. and Marianne C. Stewart. 1994. "Prospections, Retrospections, and Rationality: The 'Bankers' Model of Presidential Approval Reconsidered." *American Journal of Political Science* 38(4): 1104-1123.
- Cromwell et al (1994), pages 17-31, 68-70
- Davidson and MacKinnon (1993), Chapter 20.
- De Boef, Suzanna. 2001. "Modeling Equilibrium Relationships: Error Correction Models with Strongly Autoregressive Data." *Political Analysis* 9(1): 78-94.
- Dickey, David A., Dennis W. Jansen, and Daniel L. Thornton. 1991. "A Primer on Cointegration with an Application to Money and Income." *Federal Reserve Bank of St. Louis Review*. 73(2): 58-78.
- Durr, Robert. 1993. "An Essay on Cointegration and Error Correction Models." *Political Analysis* 4(1): 185-228.
- Engle, R.F. and C.W.J. Granger. 1987. "Cointegration and Error Correction: Representation, Estimation, and Testing." *Econometrica* 55(2): 251-276.
- Engle, R.F. and C.W.J. Granger. 1991. *Long Run Economic Relationships: Readings in Cointegration*. New York: Oxford University Press.
- Granger, C.W.J. and P. Newbold. 1974. "Spurious Regressions in Econometrics." *Journal of Econometrics*. 2:111-120.
- Granger (1990)
- Hall, S.G. 1989. "Maximum Likelihood Estimation of Cointegration Vectors: An Example of the Johansen Procedure." *Oxford Bulletin of Economics and Statistics* 51(2): 213-218.
- Hamilton, James (1994). Chapter 19.
- Johansen, Soren. 1988. "Statistical Analysis of Cointegration Vectors." *Journal of Economic Dynamics and Control* 12(2-3): 231-254.
- Lebo, Matthew J., Robert W. Walker and Harold D. Clarke. 2000. "You Must Remember This: Dealing with Long Memory in Political Analyses." *Electoral Studies* 19: 31-48.
- Mills, Terrence C. and Raphael N. Markellos. 2008. *The Econometric Modelling of Financial Times Series, 3rd edition*. Cambridge: Cambridge University Press. Chapter 9.
- Ostrom, Charles W, Jr. and Renee Smith. 1992. "Error Correction, Attitude Persistence, and Executive Rewards and Punishments: A Behavioral Theory of Presidential Approval." *Political Analysis* 4(1): 127-183.
- Smith, Renee. 1993. "Error Correction, Attractors and Cointegration." *Political Analysis* 4(1): 249-254.
- Westerlund, Woakim. 2007. "Testing for Error Correction in Panel Data." *Oxford Bulletin of Economics and Statistics* 69(6): 709-748.
- Williams, John. 1992. "What Goes Around Comes Around: Unit Root Tests and Cointegration." *Political Analysis* 4(1): 229-236.

Week 10: Cointegration and Error Correction Models, Part II

Required Reading

- *Banerjee, Anindya. 1999. "Panel Data Unit Roots and Cointegration: An Overview." *Oxford Bulletin of Economics and Statistics* 61(S1): 607-629.
- *Westerlund, Woakim. 2007. "Testing for Error Correction in Panel Data." *Oxford Bulletin of Economics and Statistics* 69(6): 709-748.
- *Breitung, Jörg and M. Hashem Pesaran. "Unit Roots and Cointegration in Panels." Chapter 9 in Laszlo Matyas and Patrick Sevestre, eds., *The Econometrics of Panel Data*. Springer.
- *Grant, Taylor, and Matthew J. Lebo. 2016. "Error Correction Methods with Political Time Series." *Political Analysis* 24(1): 3-30.
- *Keele, Luke, Suzanna Linn, and Clayton McLaughlin Webb. 2016. "Treating Time with All Due Seriousness." *Political Analysis* 24(1): 31-41.
- *Esarey, Justin. 2016. "Fractionally Integrated Data and the Autodistributed Lag Model: Results from a Simulation Study." *Political Analysis* 24(1): 42-49.

Applications

- *Lebo, Matthew J. and Will H. Moore. 2003. "Dynamic Foreign Policy Behavior." *Journal of Conflict Resolution* 47(1): 13-32.
- *Hansford, Thomas. 2011. "The Dynamics of Interest Representation at the U.S. Supreme Court." *Political Research Quarterly* 64(4): 749-764.
- *Herzer, Dierk and Holger Strulik. 2017. "Religiosity and Income: A Panel Cointegration and Causality Analysis." *Applied Economics* 49(30): 2922-2938.

Recommended Reading

- Bai, Jushan, Chihwa Kao, and Serena Ng. 2009. "Panel cointegration with global stochastic trends." *Journal of Econometrics* 149(1): 82-99.
- DeBoef, Suzanna. 2001. "Modeling Equilibrium Relationships: Error Correction Models with Strongly Autoregressive Data." *Political Analysis* 9(1): 78-94.
- Grant, Taylor, and Matthew J. Lebo. 2016. "Error Correction Methods with Political Time Series." *Political Analysis* 24(1): 3-30.
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- Krause, George A. 1997. "Voters, Information Heterogeneity, and the Dynamics of Aggregate Economic Expectations." *American Journal of Political Science* 41(4): 1170-1200.
- Lebo, Matthew J., and Taylor Grant. 2016. "Equation Balance and Dynamic Political Modeling." *Political Analysis* 24(1): 69-82.
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- Pesaran, M. Hashem. 2012. "On the interpretation of panel unit root tests." *Economics Letters* 116(3): 545-546.
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Week 11: Vector Autoregression (VAR) and Granger Causality

Required Reading

BFHP, Chapter 4

Brandt and Williams, Chapters 1-2

- *Thurman, Walter N. and Mark E. Fisher. 1988. "Chickens, Eggs, and Causality, or Which Came First?" *American Journal of Agricultural Economics* 70(2): 237-238.
- *Hood, M.V. III, Quentin Kidd, and Irwin L. Morris. 2008. "Two Sides of the Same Coin? Employing Granger Causality Tests in a Time Series Cross-Section Framework." *Political Analysis* 16(3): 324-344.

Applications

- *Box-Steffensmeier, Janet M., David Darmofal, and Christian A. Farrell. 2009. "The Aggregate Dynamics of Campaigns." *Journal of Politics* 71(1): 309-323.
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Recommended Reading

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- Cromwell et al (1994), pages 32-67
- Engle, Robert F., David F. Hendry, and Jean-Francois Richard. 1983. "Exogeneity." *Econometrica* 51(2): 277-304.
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- Mills (1990), pp. 281-305
- Sayrs, Lois W. 1993. "The Long Cycle in International Relations: A Markov Specification." *International Studies Quarterly* 37(2): 215-237.
- Stock, James H. and Mark W. Watson. 2001. "Vector Autoregressions." *Journal of Economic Perspectives* 15(4): 101-115.
- Williams, John T. 1990. "The Political Manipulation of Macroeconomic Policy." *American Political Science Review* 84(3): 767-796.
- Williams, John T. and Brian K. Collins. 1997. "The Political Economy of Corporate Taxation." *American Journal of Political Science* 41(1): 208-244.

Week 12: Panel VAR & VAR Applications

Required Reading

Enders, Chapter 5 (pages 281-336)

*Brandt and Williams, Chapter 3

*Brandt, Patrick T. and John R. Freeman. 2006. "Advances in Bayesian Time Series Modeling and the Study of Politics: Theory Testing, Forecasting, and Policy Analysis." *Political Analysis* 14(1): 1-36.

Applications

*Brandt, Patrick T., Michael Colaresi, and John R. Freeman. 2008. "The Dynamics of Reciprocity, Accountability, and Credibility." *Journal of Conflict Resolution* 52(3): 343-374.

*Zeitsoff, Thomas. 2011. "Using Social Media to Model Conflict Dynamics: An Application to the 2008-2009 Gaza Conflict." *Journal of Conflict Resolution* 55(6): 938-969.

*Lof, Matthijs, and Tuomas Malinen. 2014. "Does Sovereign Debt Weaken Economic Growth? A Panel VAR Analysis." *Economics Letters* 122(3): 403-407.

Recommended Reading

Bauwens, Luc, Michel Lubrano, and Jean-Francois Richard. 1999. *Bayesian Inference in Dynamic Econometric Models*. Oxford: Oxford University Press.

Du, Yingxin, Jiandong Ju, Carlos D. Ramirez, and Xi Yao. 2017. "Bilateral Trade and Shocks in Political Relations: Evidence from China and some of its Major Trading Partners, 1990-2013." *Journal of International Economics* 108: 211-225.

Goldstein, Joshua S. and John R. Freeman. 1990. *Three Way Street: Strategic Reciprocity in World Politics*. Chicago, IL: University of Chicago Press.

Goldstein, Joshua S. and Jon Pevehouse. 1997. "Reciprocity, Bullying, and International Cooperation: Time-series Analysis of the Bosnian Conflict." *American Political Science Review* 91(3): 515-529.

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- McGinnis, Michael D. and John T. Williams. 2001. *Compound Dilemmas: Democracy, Collective Action, and Superpower Rivalry*. Ann Arbor, MI: University of Michigan Press.
- Sims, Christopher A. and Tao Zha. 1998. "Bayesian Methods for Dynamic Multivariate Models." *International Economic Review* 39(4): 949-968.
- Williams, John T. 1990. "The Political Manipulation of Macroeconomic Policy." *American Political Science Review* 84(3): 767-796.

Week 13: Time Varying Parameters & Event Count Models

Required Reading

BHFP, Chapter 7, pages 205-212

- *Beck, Nathaniel. 1983. "Time-Varying Parameter Regression Models." *American Journal of Political Science* 27(3): 557-600.
- *Lebo, Matthew J. and Janet M. Box-Steffensmeier. 2008. "Dynamic Conditional Correlations in Political Science." *American Journal of Political Science* 52(3): 688-704.
- *Brandt, Patrick T. and John T. Williams. 2001. "A Linear Poisson Autoregressive Model: The Poisson AR(p) Model." *Political Analysis* 9(2): 164-184.

Applications

- *Mitchell, Sara McLaughlin, Scott Gates and Håvard Hegre. 1999. "Evolution in Democracy-War Dynamics." *Journal of Conflict Resolution* 43(6): 771-792.
- *Olayungbo, D.O. 2019. "Effects of Oil Export Revenue on Economic Growth in Nigeria: A Time Varying Analysis of Resource Curse." *Resources Policy* 64:
- *Mitchell, Sara McLaughlin and Will H. Moore. 2002. "Presidential Uses of Force during the Cold War: Aggregation, Truncation, and Temporal Dynamics." *American Journal of Political Science* 46(2): 438-452.

Recommended Reading

- Anderson, Christopher C., Sara McLaughlin Mitchell, and Emily Schilling. 2016. "Kantian Dynamics Revisited: Time Varying Analyses of Dyadic IGO-Conflict Relationships." *International Interactions* 42(4): 644-676.
- Beck, Nathaniel. 1989. "Estimating Dynamic Models Using Kalman Filtering." *Political Analysis* 1(1): 121-156.
- Beck, Nathaniel. 1991. "Comparing Dynamic Specifications: The Case of Presidential Approval." *Political Analysis* 3(1): 51-87.
- Brandt, Patrick T., John T. Williams, Benjamin O. Fordham and Brain Pollins. 2000. "Dynamic Modeling for Persistent Event-Count Time Series." *American Journal of Political Science* 44(4): 823-843.
- Hansen, Bruce E. 1992. "Testing for Parameter Instability in Linear Models." *Journal of Policy Modeling* 14(4): 517-533.
- Park, Jong Hee. 2012. "A Unified Method for Dynamic and Cross-Sectional Heterogeneity: Introducing Hidden Markov Panel Models." *American Journal of Political Science* 56(4): 1040-1054.

Wood, B. Dan. 2000. "Weak Theories and Parameter Instability: Using Flexible Least Squares to Take Time-Varying Relationships Seriously." *American Journal of Political Science* 44(3): 603-618.

Week 14: No Class, Thanksgiving Break

Week 15: Pooled Time Series Models

Required Reading

- *Stimson, James A. 1985. "Regression in Space and Time: A Statistical Essay." *American Journal of Political Science* 29(4): 914-945.
- *Beck, Nathaniel and Jonathan M. Katz. 2011. "Modeling Dynamics in Time-Series-Cross-Section Political Economy Data." *Annual Review of Political Science* 14: 331-352.
- *Carter, David B. and Curtis S. Signorino. 2010. "Back to the Future: Modeling Time Dependence in Binary Data." *Political Analysis* 18(3): 271-292.
- *Esarey, Justin and Jacqueline H.R. DeMerritt. 2014. "Defining and Modeling State-Dependent Dynamic Systems." *Political Analysis* 22(2): 61-85.

Recommended Reading

- Special Issue of *Political Analysis*, "From Statistical Nuisances to Serious Modeling: Changing How We Think About the Analysis of Time-Series–Cross-Section Data." 2007, Volume 15, Number 2.
- Beck, Nathaniel. 2008. "Time-Series—Cross-Section Methods." In *Oxford Handbook of Political Methodology*. Janet Box-Steffensmeier, Henry Brady and David Collier (eds.). New York: Oxford University Press. (pp. 475-93)
- Beck, Nathaniel. 2001. "Time-Series-Cross-Section Data: What Have We Learned in the Past Few Years?" *Annual Review of Political Science* 4: 271-293.
- Beck, Nathaniel and Jonathan N. Katz. 1995. "What to Do (and Not to Do) with Times-Series-Cross-Section Data." *American Political Science Review* 89(3): 634-647.
- Beck, Nathaniel and Jonathan N. Katz. 1996. "Nuisance vs. Substance: Specifying and Estimating Time-Series-Cross-Section Models." *Political Analysis* 6(1): 1-36.
- Beck, Nathaniel and Jonathan N. Katz. 2001. "Throwing Out the Baby With the Bath Water: A Comment on Green, Kim, and Yoon." *International Organization* 55(2): 487-495.
- Beck, Nathaniel, Jonathan N. Katz and Richard Tucker. 1998. "Taking Time Seriously: Time-Series-Cross-Section Analysis with a Binary Dependent Variable." *American Journal of Political Science* 42(4): 1260-1288.
- Fording, Richard C. 1997. "The Conditional Effect of Violence as a Political Tactic: Mass Insurgency, Welfare Generosity, and Electoral Context in the American States." *American Journal of Political Science* 41(1): 1-29.
- Finkel, Steven. 1995. *Causal Analysis With Panel Data*. Beverly Hills: Sage.
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- Holbrook, Thomas M. 1991. "Presidential Elections in Space and Time." *American Journal of Political Science* 35(1): 91-109.
- Hsiao, Cheng. 1986. *Analysis of Panel Data*. New York: Cambridge University Press.
- Kerr, Brinck and Kenneth R. Mladenka. 1994. "Does Politics Matter? A Time-Series Analysis of Minority Employment Patterns." *American Journal of Political Science* 38(4): 918-943.

- King, Gary. 2001. "Proper Nouns and Methodological Propriety: Pooling Dyads in International Relations Data." *International Organization* 55(2): 497-507.
- Pindyck, Robert S. and Daniel Rubinfeld. 1981. *Econometric Models and Economic Forecasts*. New York: McGraw-Hill.
- Shor, Boris, Joseph Baufumi, and Luke Keele. 2007. "A Bayesian Multilevel Modeling Approach to Time-Series Cross-Section Data." *Political Analysis* 15(2): 165-181.
- Wawro, Gregory. 2002. "Estimating Dynamic Panel Data Models in Political Science." *Political Analysis* 10(1): 25-48.
- Wooldridge, Jeffrey M. 2002. *Econometric Analysis of Cross Section and Panel Data*. MIT Press.
- Zorn, Christopher J.W. 2001. "Generalized Estimating Equation Models for Correlated Data: A Review with Applications." *American Journal of Political Science* 45(2): 470-490.

Week 16: Presentations of Research Projects

UI and the College of Liberal Arts and Sciences

Students are responsible for attending class and for contributing to the learning environment of a course. Students are also responsible for knowing their course absence policies, which will vary by instructor. All absence policies, however, must uphold the UI policy related to student illness, mandatory religious obligations, including Holy Day obligations, military service obligations, unavoidable circumstances or University authorized activities. Students may use the CLAS absence form to aid communication with the instructor who will decide if the absence is excused or unexcused. The form is on ICON in the top banner under "Student Tools." More information is at <https://clas.uiowa.edu/students/handbook/attendance-absences>.

All undergraduates enrolled in courses offered by CLAS have, in essence, agreed to the College's [Code of Academic Honesty](#). Misconduct is reported to the College, resulting in suspension or other sanctions, with sanctions communicated with the student through UI email. Visit this page for information: (<https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>).

UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related condition) by registering with Student Disability Services (SDS). The student is then responsible for discussing specific accommodations with the instructor. More information is at <https://sds.studentlife.uiowa.edu/>.

The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs its add/drop deadlines, the second-grade-only option, and related policies. Other colleges may have different policies. CLAS policies may be found here: <https://clas.uiowa.edu/students/handbook>.

Students are expected to comply with University policies regarding appropriate classroom behavior as outlined in the [Code of Student Life](#). This includes the policies and procedures that all students have agreed to regarding the Steps Forward for Fall 2020 in response to the COVID-19 pandemic. Particularly, all students are required to wear a face covering when in a UI building, including a classroom. In addition, the density of seats in classrooms has been reduced; in some instances, this will allow 6 feet or more between students while other cases, it may be less. Regardless, wearing a face covering and maintaining as much distance as possible are vital to slowing the spread of COVID-19. In the event that a student disrupts the classroom environment through their failure to comply with the reasonable directive of an instructor or the University, the instructor has the authority to ask that the student immediately leave the space for the remainder of the class period. Additionally, the instructor is asked to report the incident to the [Office of Student Accountability](#) for the possibility of additional follow-up. Students who need a temporary alternative learning arrangement related to COVID-19 expectations should contact [Student Disability Services arrangements](#); +1 319 335-1462) (<https://sds.studentlife.uiowa.edu/fall-2020/covid-19-temporary-learning-arrangements/>).

Some sessions of a course could be recorded or live-streamed. Such a recording or streaming will only be available to students registered for the course. These recordings are the intellectual property of the faculty, and they may not be shared or reproduced without the explicit consent of the faculty member. Students may not share these sessions with those not in the class; likewise, students may not upload recordings to any other online environment. Doing so is a breach of the Code of Student Conduct and, in some cases, a violation of the Federal Education Rights and Privacy Act (FERPA).

Students are responsible for official correspondences sent to the UI email address (uiowa.edu) and must use this address for all communication within UI ([Operations Manual, III.15.2](#)).

Students with a complaint about an academic issue should first visit with the instructor or course supervisor and then with the Chair of the department or program offering the course; students may next bring the issue to the College of Liberal Arts and Sciences; see this page for more information: <https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

The final exam schedule is announced around the fifth week of classes; students are responsible for knowing the date, time, and location of a final exam. Students should not make travel plans until knowing this information. No exams of any kind are allowed the week before finals with very few exceptions made (for labs, ESL and some world language courses, and off-cycle courses): <https://registrar.uiowa.edu/final-examination-scheduling-policies>.

The University of Iowa is committed to making the classroom a respectful and inclusive space for people of all gender, sexual, racial, religious, and other identities. Toward this goal, students are invited in MyUI to optionally share the names and pronouns they would like their instructors and advisors to use to address them. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity (<https://diversity.uiowa.edu/eod>; +1 319 335-0705 or (diversity.uiowa.edu).

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community must uphold the UI mission and contribute to a safe environment that enhances learning. Incidents of sexual harassment must be reported immediately. For assistance, please see <https://osmrc.uiowa.edu/>.

Students are responsible for attending class and for contributing to the learning environment of a course. Students are also responsible for knowing the absence policies for their courses, which will vary by instructor. All absence policies, however, must uphold the UI policy related to student illness, mandatory religious obligations, unavoidable circumstances, or University authorized activities (<https://clas.uiowa.edu/students/handbook/attendance-absences>).

All undergraduates enrolled in courses offered by CLAS have, in essence, agreed to the College's Code of Academic Honesty. Misconduct is reported to the College, resulting in suspension or other sanctions, with sanctions communicated with the student through the UI email address (<https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>).

UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related condition) by registering with Student Disability Services (SDS). The student is then responsible for discussing specific accommodations with the instructor. More information is at <https://sds.studentlife.uiowa.edu>.

The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs the add/drop deadlines, the second-grade-only option, and related policies. Other colleges may have different policies. CLAS policies may be found here: <https://clas.uiowa.edu/students/handbook>.

Students are responsible for official correspondences sent to the UI email address (uiowa.edu) and must use this address for all communication within UI.

Students with a complaint about a course should first visit with the instructor or course supervisor and then with the Chair of the department (Interim DEO Brian Lai, 319-335-2353). Students may next bring the issue to CLAS in 120 Schaeffer Hall. For more information, see <https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

The final exam schedule is announced around the fifth week of classes; students are responsible for knowing the date, time, and place of a final exam. Students should not make travel plans until knowing this information. No exams of any kind are allowed the week before finals. Visit: <https://registrar.uiowa.edu/final-examination-scheduling-policies>

UI is committed to making the classroom a respectful and inclusive space for all people irrespective of their gender, sexual, racial, religious or other identities. Toward this goal, students are invited to optionally share their preferred names and pronouns with their instructors and classmates. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity (<https://diversity.uiowa.edu/office/equal-opportunity-and-diversity>).

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community must uphold the UI mission and contribute to a safe environment that enhances learning. Incidents of sexual harassment must be reported immediately. For assistance, please see <https://osmrc.uiowa.edu>

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 Academic Policies Handbook at <http://clas.uiowa.edu/students/handbook>.

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, k.11](#)).

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 include but are 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 <http://sds.studentlife.uiowa.edu/> for information.

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](#)).

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.

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident ([CLAS Academic Policies Handbook](#)).

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.

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](#).