PSCI 7255: Time Series and Pooled Time Series

University of Colorado Boulder

Spring 2022

Time:	Friday, 8:30-11:00AM
Location:	KTCH 1B31
Instructor:	Dr. Andrew Q. Philips
Office:	KTCH 131
Email:	andrew.philips@colorado.edu
Office hours:	Thursday, 12:00-2:00, or by appointment

COURSE DESCRIPTION: Time series models—models which take advantage of variation over time in a single unit—and pooled time series (sometimes called cross-sectional time series or time series cross-sectional) models—which utilize variation across both time and spatial units—are very common in political science. While these models offer substantial leverage over important social science problems that use purely cross-sectional data, there are a number of pitfalls that are necessary to avoid during estimation.

In this course we will cover both time series and pooled time series. The first half of the class will be spent on time series. We will discuss the structure of these data, diagnosing certain characteristics, and cover a number of models that can be used to model time series data, such as autoregressive distributed lag, error-correction, and vector autoregressive models. In the second half of the course, we move to pooling time series data across multiple units. Much of the discussion during this part involves how we choose to model temporal and spatial heterogeneity—or, indeed—whether we model it at all.

By the end of this course you should be able to:

- Understand a variety of time series and pooled time series models
- Diagnose and test for characteristics unique to these types of data
- Be comfortable reading articles and books utilizing these data
- Apply what you have learned to your research.

PREREQUISITES: This is a graduate level course; students should have a background in advanced regression statistics (i.e., Data I, II and III).

SOFTWARE: We will use a mix of R and Stata in this course. Although both statistical packages can handle time series and pooled time series data, sometimes R excels at a particular tool, and sometimes Stata does. Although familiarity with either program is not necessary, it is a plus. Those unfamiliar with these programs may want to purchase or borrow some of the suggested textbooks that cover working with R and Stata, although there are copious amounts of information available for free online. Please download both R (https://cran.r-project.org/) and RStudio (https://www.rstudio.com/) before the first class session.

GRADES: Course grades will be based on the following. Participation and completing the labs is worth 20% of the final grade. In lieu of exams, there will be three assignments given throughout the semester that are worth 25% of the final grade. There will also be an original research paper that

comprises 40% of the final grade, as well as a colleague critique of these papers (worth 15%). Note that there are no opportunities for extra credit, nor is there a final exam.

Participation and Labs	20%
Colleague Critique	15%
Assignments	25%
Original Research Paper	40%

The following scale will be used to turn numerical grades into letter ones. Note that I will round up a letter should your grade fall on the number (but on or above 0.5) between two letters (e.g., 89.5 up to 90 rounds up to an A-).

Grade Scale

A	95-100
A-	90-94
B+	87-89
B	84-86
B-	80-83
C+	77-79
C	74-76
C-	70-73
D+	67-69
D	64-66
D-	60-63
F	0-59

PARTICIPATION: Participation is an integral component of graduate courses. Students are expected to come to every class *having already read the assigned readings for that day*, and should be prepared to discuss them. Graduate-level courses only are successful when all participate actively in the discussion.

LABS: Each week, there will be lab assignments. This will mostly involve students successfully replicating the lab assignments.

ASSIGNMENTS: Throughout the semester there will be three take-home assignments designed to assess students' grasp of key concepts and approaches. These will be more involved than the weekly labs.

ORIGINAL RESEARCH PAPER: By the end of the class, students should have a solo-authored research article-length working paper that either: a.) a purely methodological paper (less common), or b.) an applied research paper that utilizes at least one of the maximum likelihood models discussed in the course. Since one semester is a short time in which to write such a paper, it is crucial to get some semblance of an research topic early in the semester. I encourage students to meet with me early on to discuss potential topics. Half-way through the semester, there will be a mandatory "check-in" to ensure all students have a feasible research topic. I am open to this paper being submitted for credit in another course, or a substantial re-write from a previous semester, but this needs to be cleared by me (and by the other professor if applicable). Note that the most important part of the research paper for the purposes of this class is the theory, hypotheses, research design, and presentation and interpretation of the results. Students are highly encouraged to write the paper using LaTeX.

COLLEAGUE CRITIQUE: After all research papers are due, I will assign each student to read and

critique *two* of their fellow students' papers. Students should treat this just as they would an invitation to peer review a manuscript. Theory, research design, data, methods, etc,... should be critiqued.

ATTENDANCE AND LATE POLICY: Attendance is a key component of succeeding in graduate school. I provide slides for each class, but we will have a much more comprehensive discussion than what appears on the slide. Attendance is mandatory, with the exception of university-excused absences. If you need to miss a class, you should let me know in advance so that we can make arrangements.

Assignments are due on the day listed in the syllabus. Late assignments will not be accepted.

REQUIRED TEXTS: The following text is *highly recommended* for this course. Any additional readings will be made available to you on the first day of class or as needed.

- Pickup, Mark. 2014. *Introduction to Time Series Analysis*. SAGE Publications. Quantitative Applications in the Social Sciences. 1st Edition.

Note that it is expected to read the week's required readings before coming to class.

RECOMMENDED TEXTS: The following texts are not required, but may be helpful to some. In the schedule below there are additional texts in the "suggested readings".

- On LaTeX:
  - Philips, Andrew Q. 2021. "LaTeX: A brief introduction".
  - Various links provides on the LaTeX Project website: https://www.latex-project.org/help/links/.
- On R:
  - Monogan, James E. 2015. *Political analysis using R*. Springer.
  - Burns, Patrick. 2011. *The R Inferno*. Available at: http://www.burns-stat.com/documents/books/the-r-inferno/.
  - Philips, Andrew Q. 2021. "R: A brief introduction."
- On Stata:
  - Cameron, Adrian Colin, and Pravin K. Trivedi. 2009. *Microeconometrics using Stata* Volume 5. College Station, TX: Stata Press.
- On time series (general):
  - Asteriou, Dimitrios and Stephen G. Hall. 2011. *Applied Econometrics*. 2nd Edition. Palgrave.
  - Enders, Walter. 2010 *Applied Econometric Time Series.* 3rd Edition. John Wiley & Sons.
  - Box-Steffensmeier, Janet M., John R. Freeman, Matthew P. Hitt, and Jon C.W. Pevehouse. 2015. *Time series analysis for the social sciences*. Cambridge University Press.
- On pooled time series or econometrics in general:
  - Gelman, Andrew, and Jennifer Hill. *Data analysis using regression and multilevel/hierarchical models*. Cambridge University Press, 2006.
  - Greene, William. 2011. *Econometric analysis*. 7th Edition. Upper Saddle River, NJ: Prentice-Hall.
  - Wooldridge, Jeffrey M. 2010. *Econometric analysis of cross section and panel data*. MIT Press.

TENTATIVE SCHEDULE:

Topic 1: Introduction to Time Series Data, Diagnosing Time Series Properties

Required Readings:

- Pickup, Introduction, Ch. 1 and 2

Topic 2: ARIMA and Distributed Lag Models

Required Readings:

- Pickup Ch. 3, 4 (§4.1-4.3), and 5 (§5.1-5.4)
- Beck, Neal. 1991. "Comparing Dynamic Specifications: The Case of Presidential Approval." Political Analysis. 3:51-87.
- Keele, Luke and Nathan Kelly. 2006. "Dynamic models for dynamic theories: The ins and outs of lagged dependent variables." Political Analysis. 14 (2), 186-205.
- Whiteley, Paul, Harold D. Clarke, David Sanders and Marianne C. Stewart. 2016. "Forecasting the 2015 British general election: The Seats-Votes model." *Electoral Studies* 41: 269-273.
- van Heerden, Sjoerdje Charlotte and Wouter van der Brug. 2017. "Demonisation and electoral support for populist radical right parties: A temporary effect" *Electoral Studies* 47: 36-45.

Suggested Readings:

- Clarke, Harold D., William Mishler, and Paul Whiteley. 1990. "Recapturing the Falklands: Models of Conservative popularity, 1979-83." *British Journal of Political Science* 20(1):63-81.
- La Raja, Raymond J. and Brian F. Schaffner. 2014. "The effects of campaign finance spending bans on electoral outcomes: Evidence from the states about the potential impact of *Citizens United v. FEC*" *Electoral Studies* 33: 102-114.
- Shumway, Robert H. and David S. Stoffer. 2017 *Time series analysis and its applications*. Springer.

Topic 3: Unit Roots, Cointegration, and ECMs (I)

Required Readings:

- Pickup Ch. 6
- De Boef, Suzanna and Luke Keele. 2008. "Taking time seriously." *American Journal of Political Science*: 52(1): 184-200.
- Philips, Andrew Q. 2018. "Have your cake and eat it too? Cointegration and dynamic inference from autoregressive distributed lag models." *American Journal of Political Science*: 62(1): 230-244.
- Webb, Clayton, Suzanna Linn and Matthew Lebo. 2020. "Beyond the unit root question: Uncertainty and inference." *American Journal of Political Science* 64(2): 275-292.

Suggested Readings:

- Pfaff, Bernhard. 2008 *Analysis of integrated and cointegrated time series with R*. Springer.
- Webb, Clayton, Suzanna Linn and Matthew Lebo. 2019. "A bounds approach to inference using the long-run multiplier." *Political Analysis* 27: 281-301.
- Jordan, Soren and Andrew Q. Philips. 2018. "Cointegration testing and dynamic simulations of autoregressive distributed lag models" *The Stata Journal* 18(4): 902-923.
- Jordan, Soren and Andrew Q. Philips. 2018. "Dynamic simulation and testing for single-equation cointegrating and stationary autoregressive distributed lag models" *The R Journal* 10(2): 469-488.

Topic 4: Unit Roots, Cointegration, and ECMs (II); Fractional [Co]Integration

Required Readings:

- Philips, Andrew Q. 2021. "How to avoid incorrect inferences (while gaining correct ones) in dynamic models. *Political Science Research and Methods*: 1-11.
- Kraft, Patrick W., Ellen M. Key and Matthew Lebo. 2021. "Hypothesis testing with error correction models." *Political Science Research and Methods*: 1-9.
- Box-Steffensmeier, Janet M., and Andrew R. Tomlinson. 2000 "Fractional integration methods in political science." *Electoral Studies* 19.1:63-76.
- Dickinson, Matthew J. and Matthew J. Lebo. 2007. "Reexamining the growth of the institutional presidency, 1940-2000." *Journal of Politics* 69(1): 206-219.

Suggested Readings:

- *Political Analysis* time series symposium articles:
  - Box-Steffensmeier, Janet and Agnar Freyr Helgason. 2016. "Introduction to symposium on time series error correction methods in political science." *Political Analysis* 24(1): 1-2.
  - 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 M. 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.
  - Freeman, John R. 2016. "Progress in the study of nonstationary political time series: A comment." *Political Analysis* 24(1): 50-58.
  - 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. and Taylor Grant. "Equation Balance and Dynamic Political Modeling." *Political Analysis* 24(1): 69-82.
  - Keele, L., Linn, S., and Webb, C. 2016. "Concluding Comments". *Political Analysis* 24(1): 83-86.
- Box-Steffensmeier, Janet M., and Renee M. Smith. 1998. "Investigating political dynamics using fractional integration methods." *American Journal of Political Science* 42(2): 661-89.
- 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(1): 31-48.
- Clarke, Harold D., and Matthew Lebo. 2003 "Fractional (co) integration and governing party support in Britain." *British Journal of Political Science* 33.02: 283-301.

Topic 5: VAR Models

Assignment 1 handed out

Required Readings:

- Freeman, John, John Williams and T. Lin. 1989. "Vector Autoregression and the Study of Politics." *American Journal of Political Science* 33: 842-77.
- Wood, B. Dan. 2009. "Presidential saber rattling and the economy." *American Journal of Political Science* 53(3):695-709.
- Box-Steffensmeier, Janet M., David Darmofal, and Christian A. Farrell. 2009 "The aggregate dynamics of campaigns." *The Journal of Politics* 71(1): 309-323.
- Saeki, Manabu. 2013. "The myth of the elite cue: Influence of voters' preferences on the US Congress." *Public Opinion Quarterly* 77(3): 755-782.

Suggested Readings:

- Brandt, Patrick T., and John T. Williams. 2007. *Multiple Time Series Models*

- Whiteley, Paul, Harold Clarke, David Sanders and Marianne Stuart. 2016. "Hunting the Snark: A reply to 'Re-evaluating the valence models of political choice."' *Political Science Research and Methods*: 221-240.
- Johansen, Soren. 1995. *Likelihood-based inference in cointegrated vector autoregressive models.* Oxford University Press.

Topic 6: ARCH/GARCH and DCC

Required Readings:

- Pickup Ch. 4 (§4.4) and 5 (§5.5)
- Bernhard, William and David Leblang. 2006. "Polls and pounds: Public opinion and exchange rate behavior in Britain." *Quarterly Journal of Political Science* 1:25-47.
- Benton, Allyson L., and Andrew Q. Philips. 2020. "Does the @realDonaldTrump really matter to financial markets?" *American Journal of Political Science* 64(1): 169-190.
- Kellstedt, Paul M., Suzanna Linn, and A. Lee Hannah. 2015. "The usefulness of consumer sentiment: Assessing construct and measurement." *Public Opinion Quarterly* 79(1):181-203.

Suggested Readings:

- Hellwig, Timothy. 2007. "Economic openness, policy uncertainty, and the dynamics of government support." *Electoral Studies* 26(4):772-786.
- Benton, Allyson L., Soren Jordan and Andrew Q. Philips. "Picture perfect: Visualizing the statistical and substantive significance of ARCH/GARCH models." Working Paper.
- Gronke, Paul and John Brehm. 2002. "History, heterogeneity, and presidential approval: a modified ARCH approach." Electoral Studies 21(3):425-452.

Topic 7: Panel Data Fundamentals

Required Readings:

- Philips, Andrew Q. n.d. *Pooled Data Analysis for the Social Sciences*. Chapter 2.
- Beck, N. 2001. "Time-series-cross-section data: What have we learned in the past few years?" *Annual Review of Political Science* 4(1):271-293.
- Skim: Croissant Y, Millo G. 2008. "Panel Data Econometrics in R: The plm Package." Journal of Statistical Software, 27(2). URL http://www.jstatsoft.org/v27/i02/.

Topic 8: Modeling Out Heterogeneity and Dependence; Tests for Spatial Dependence

Required Readings:

- Beck, Nathaniel and Jonathan Katz. 1995. "What To Do (and Not To Do) with Time Series Cross-Section Data." *American Political Science Review* 89:634-47.
- De Hoyos, R. E. and Sarafidis, V. (2006). "Testing for cross-sectional dependence in panel-data models." *The Stata Journal* 6(4):482-496.
- Philips, Andrew Q. n.d. *Pooled Data Analysis for the Social Sciences*. Chapter 5.

Suggested Readings:

- Phillips, P.C. and Sul, D. 2003. "Dynamic panel estimation and homogeneity testing under cross section dependence." *The Econometrics Journal* 6(1):217-259.
- Pesaran, M. H. 2021. "General diagnostic tests for cross section dependence in panels." *Empirical Economics* 60: 13-50.

Topic 9: Modeling Heterogeneity: Intercepts

Assignment 2 handed out

Required Readings:

- Stimson, James. 1985. "Regression in Time and Space: A Statistical Essay." *American Journal of Political Science* 29:914-947.
- Zhu, L. 2012. "Panel Data Analysis in Public Administration: Substantive and Statistical Considerations." *Journal of Public Administration Research and Theory* 23:395-428.
- Clark, Tom S., and Linzer, Drew A., 2015. "Should I use fixed or random effects?" *Political Science Research and Methods* 3(2):399-408.
- Kittel, Bernhard, and Hannes Winner. 2005. "How reliable is pooled analysis in political economy? The globalization-welfare state nexus revisited." *European Journal of Political Research* 44(2):269-293.

Suggested Readings:

- Kropko, Jonathan and Robert Kubinec. 2020. "Interpretation and identification of within-unit and cross-sectional variation in panel data models" *PLoS ONE*: 1-22.

Topic 10: RE/FE Interpretation and Alternatives to Fixed and Random Effects

Required Readings:

- Bell, Andrew, and Jones, Kelvyn, 2015. "Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data." *Political Science Research and Methods*, 3(1):133-153.
- Mummolo, J. and Peterson, E. 2018. "Improving the interpretation of fixed effects regression results." *Political Science Research and Methods* 6(4):829-835.
- Jordan, Soren and Andrew Q. Philips. Forthcoming. "Improving the interpretation of fixed effects regression results." *Political Studies Review*.
- Dieleman, Joseph and Tara Templin. 2014. "Random-Effects, Fixed-Effects and the within-between Specification for Clustered Data in Observational Health Studies: A Simulation Study" *PLoS ONE* 9(10): 1-17.

Suggested Readings:

- Plumper, Thomas, and Vera E. Troeger. 2007. "Efficient estimation of time-invariant and rarely changing variables in finite sample panel analyses with unit fixed effects." *Political Analysis* 15:124-139.
- Plumper, T. and Troeger, V. E. 2011. "Fixed-effects vector decomposition: properties, reliability, and instruments." *Political Analysis* 19(2):147-164.
- Bell, Andrew, Malcolm Fairbrother and Kelvyn Jones. 2019. "Fixed and random effects models: Making an informed choice." *Quality and Quantity* 53: 1051-1074.
- Schunck, Reinhard. 2013. "Within and between estimates in random-effects models: Advantages and drawbacks of correlated random effects and hybrid models." *The Stata Journal* 13(1): 65-76.

March 25: NO CLASS (Spring Break)

Topic 11: Panel Unit Root and Cointegration Testing

Required Readings:

- Philips, Andrew Q. n.d. *Pooled Data Analysis for the Social Sciences*. Chapter 4.
- Hlouskova, Jaroslava and Martin Wagner. 2006. "The performance of panel unit root and stationarity tests: Results from a large scale simulation study." *Econometric Review* 25(1):85-116.
- Neal, Timothy. 2014. "Panel cointegration analysis with xtpedroni." *The Stata Journal* 14(3):684- 692.

Suggested Readings:

- Maddala, G.S. and Shaowen Wu. 1999. "A comparative study of unit root tests with panel data and a new simple test." *Oxford Bulletin of Economics and Statistics, Special Issue* 61(S1):631-652.
- Westerlund, Joakim. 2005. "New simple tests for panel cointegration." *Econometric Review* 24(3):297- 316.

Week 12: Dynamic Models, Mean-Group, Pooled Mean-Group Estimators and Common Correlated Effects

Required Readings:

- Philips, Andrew Q. n.d. *Pooled Data Analysis for the Social Sciences*. Chapter 3.
- Williams, Laron K., and Guy D. Whitten. 2012. "But Wait, There's More! Maximizing Substantive Inferences from TSCS Models." *Journal of Politics* 74(3): 685-93.
- Plumper, Thomas, Vera E. Troeger, and Philip Manow. 2005. "Panel data analysis in comparative politics: Linking method to theory." *European Journal of Political Research* 44:327-354.
- Wilson, S.E. and D.M. Butler. 2007. "A Lot More to Do: The Sensitivity of Time-Series Crosssection Analyses to Simple Alternative Specifications." *Political Analysis* 15:101-123.
- Ditzen, Jan. 2018. "Estimating Dynamic Common Correlated Effects in Stata." *The Stata Journal* 18()3):585-617.
- Blackburne, Edward F. III and Mark W. Frank. 2007. "Estimation of nonstationary heterogeneous panels." *The Stata Journal* 7(2):197-208.

Suggested Readings:

- Williams, Laron K., and Guy D. Whitten. 2011. "Dynamic simulations of autoregressive relationships." *The Stata Journal* 11(4):1-12.
- Chapter 22, "Dynamic Heterogeneous Panel Data Models" of Asteriou, Dimitrious and Stephen G. Hall, *Applied Econometrics*, 3rd edition. Palgrave, 2016.
- "Cross-Section Dependence and Nonstationary Data" of Mans Soderbom and Francis Teal with Markus Eberhardt, Simon Quinn and Andrew Zeitlin, *Empirical Development Economics*, 1st edition. Routledge, 2015. Chapter 27.
- Pesaran, M.H. and Smith, R., 1995. "Estimating long-run relationships from dynamic heterogeneous panels." *Journal of Econometrics* 68(1):79-113.
- Pesaran, M. H., Shin, Y., and Smith, R. P. 1999. "Pooled mean group estimation of dynamic heterogeneous panels." *Journal of the American Statistical Association* 94(446): 621-634.

Week 13: Dichotomous Dependent Variables; More on Effect Heterogeneity

Assignment 3 handed out

Required Readings:

- Carter, David B. and Curtis S. Signorino. 2010. "Back to the future: Modeling time dependence in binary data." *Political Analysis* 18(3):271-292.
- 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* 42:1260-1288.
- Philips, Andrew Q. n.d. *Pooled Data Analysis for the Social Sciences*. Chapter 11.
- Philips, Andrew Q. 2020. "An easy way to create duration variables in binary cross-sectional time-series data." *The Stata Journal* 20(4): 916-930.

Week 14: Small-T Data Models and Alternative Estimators

Required Readings:

- Pickup, Mark, and Vincent Hopkins. 2020. "Transformed-likelihood estimators for dynamic panel models with a very small T." *Political Science Research and Methods*: 1-20.
- Roodman, David. 2009. "How to do xtabond2: An Introduction to Difference and System GMM in Stata." *The Stata Journal* 9(1):86-136.
- Roodman, David. 2009. "A Note on the Theme of Too Many Instruments." *Oxford Bulletin of Economics and Statistics* 71.1: 135-158.
- Williams, R., Allison, P. and Moral-Benito, E., 2018. "Linear dynamic panel-data estimation using maximum likelihood and structural equation modeling." *The Stata Journal* 18(2): 293-326.

Suggested Readings:

- Anderson, T. W. and Hsiao, C. 1981. "Estimation of dynamic models with error components." *Journal of the American statistical Association* 76(375):598-606.
- Wawro, Gregory. 2002. "Estimating dynamic panel data models in political science." *Political Analysis* 10(1):25-48.
- Pickup, M., P. Gustafson, D. Cubranic, and G. Evans 2017. "OrthoPanels: An R Package for Estimating a Dynamic Panel Model with Fixed Effects Using the Orthogonal Reparameterization Approach." *The R Journal* 9(1):60-76.
- Kripfganz, S. 2016. "xtdpdqml: Quasi-maximum likelihood estimation of linear dynamic short-T panel data models." *The Stata Journal*.

Research papers due TBA, by 11:59pm.

Student critiques due TBA by Noon.

University-Mandated Syllabus Statements

CLASSROOM BEHAVIOR

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on classroom behavior and the Student Conduct & Conflict Resolution policies.

REQUIREMENTS FOR COVID-19

As a matter of public health and safety, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct and Conflict Resolution. For more information, see the policy on classroom behavior and the Student Code of Conduct. If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the "Accommodation for Disabilities" statement on this syllabus.

CU Boulder currently requires masks in classrooms and laboratories regardless of vaccination status. This requirement is a precaution to supplement CU Boulder's COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the "Accommodation for Disabilities" statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

If you feel ill and think you might have COVID-19, if you have tested positive for COVID-19, or if you are unvaccinated or partially vaccinated and have been in close contact with someone who has COVID-19, you should stay home and follow the further guidance of the Public Health Office (contacttracing@colorado.edu). If you are fully vaccinated and have been in close contact with someone who has COVID-19, you do not need to stay home; rather, you should self-monitor for symptoms and follow the further guidance of the Public Health Office (contacttracing@colorado.edu).

ACCOMMODATION FOR DISABILITIES

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website. Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see Temporary Medical Conditions on the Disability Services website.

PREFERRED STUDENT NAMES AND PRONOUNS

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

HONOR CODE

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the Honor Code website.

SEXUAL MISCONDUCT, DISCRIMINATION, HARASSMENT AND/OR RELATED RETALIATION

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. The university will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email cureport@colorado.edu. Information about university policies, reporting options, and the support resources can be found on the OIEC website.

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options. To learn more about reporting and support options for a variety of concerns, visit Don't Ignore It.

RELIGIOUS HOLIDAYS

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See the campus policy regarding religious observances for full details.

SYLLABUS CHANGES

I reserve the right to make changes to the syllabus during the course of the semester as needed and will make the most updated copy available to you and announce said changes during class.

Last updated: January 5, 2022