Quantitative Research Methods and Design
Sociology 6201, Fall 2020
Mondays, 6:00pm to 8:50pm
GAB 330D

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Office Hours: Mondays 3pm to 6pm. Please schedule an appointment.

COURSE DESCRIPTION
This course has three aims, each of which contribute to students' engagement with quantitative methods in the social sciences.

First, we will engage with research on the foundations of quantitative social science. We will read about the history of these methods, their epistemological assumptions, and the way power, racism, and sexism is sometimes incorporated into quantitative methods. We focus on these foundations to be sure our application of these methods are for social good.

Second, we will cover a number of quantitative techniques used to make inferences about social life. We will do this in two ways. First, we will read about a number of different quantitative research designs throughout the semester. Each design is intended to answer a different type of research question in a way that improves our certainty of conclusions. We will not go into much depth on any particular method. In fact, we could have an entire semester-long class on nearly every method we read about. Instead, the aim is to provide an introduction to many different methodological approaches so that students walk away from this class with, at a minimum, the knowledge about what type of method is appropriate to use for their research question. Then, they can acquire further expertise as they apply it in their own research.

Also pertaining to the second aim, half of each class will be devoted to lab time where I introduce some of the quantitative techniques we read. This time will also be used for students to conduct their own research in the course of completing their course project.

Third, we will improve our writing. We will strengthen our framing of articles as well as our reporting of results. We will also discuss effective strategies for organizing and writing journal articles.

COVID-19
We are in a global pandemic. We all need to be flexible. If you are feeling unwell, do not attend class. In these cases, you may attend remotely, just let me know in advance.

Masks: Consistent with UNT Policy, face masks are required in the classroom. If, for health or other reasons, you cannot wear one, please let me know as soon as possible.

Cleaning the Workspace: There will be materials to disinfect computers and desks before the start of every class. Please use these at the beginning of every class to clean you desk, chair, and computer.

Communication: Please be sure to check your e-mail regularly, particularly on Mondays and Sundays as this semester it is possible that consequential announcements regarding where our class is meeting may happen regularly.

LAND ACKNOWLEDGEMENT

In recognition of the history and ongoing processes of colonialism by which the land where our class and the University of North Texas exists, I would like to acknowledge that this space is the occupied/unceded/seized territory of the Wichita, Caddo, Commanche, and Cherokee tribes. These tribes have stewarded this land through several generations and we pay our respects to elders, both past and present.

Note: Land Acknowledgement Statement adapted from the UNT Division of Institutional Equity and Diversity

GUEST POLICY

Children and dependents are welcome in class. We meet in the evenings. This is difficult for those of us with caregiving responsibilities. Please do not hesitate if you need to bring your loved ones to class.

REQUIRED MATERIALS: Stata Statistical Software

We will be using Stata in this class as a quantitative analysis software. If you have never used Stata before, that is OK. We will use lab time to orient you to the software.

Stata is available in the computer lab we use in class. But you will also need it outside of class time to conduct your personal research and complete course assignments. I strongly suggest you purchase Stata. There are different versions with varying computational power. You'll have to choose one that fits your needs.

Stata IC is best for small to mid-sized datasets, such as the General Social Survey (although, not all GSS variables will fit in Stata IC, so you must select which variables you want). It's the cheapest version. A student license is $48 for a 6-month license, $94 for a yearly license, or $225 for a perpetual license.

Stata SE can se used for larger datasets, such as the U.S. Census microdata (1 to more than 15 million observations) or the full GSS (nearly 3,000 variables). A student license is $125 for a 6-month license, $179 for a yearly license, or $425 for a perpetual license.

Stata MP versions are like Stata SE, but improve computing speed which can be important when using large datasets and complex models. You probably don't need these versions yet.

To purchase Stata, visit this website and follow the prompts:
https://www.stata.com/order/new/edu/gradplans/student-pricing/

I realize many students get nervous about using different statistical software. Perhaps you are more comfortable with SPSS. Or you'd rather use R or SAS. As a researcher, you need to be familiar with multiple software programs for data analysis. We will use Stata because it is the most useful for our educational setting and for collaborative work.

ASSIGNMENTS
There are three categories of assignments that factor into course grades.

1) ***Summary and Notes on Readings***. Each class, students will volunteer to distribute notes and summaries on each of the readings. A different student will be assigned to each reading, and assignments will be evenly distributed across the class. Notes and summaries should be about one page and definitely no longer than two page. They should look something like this:
    -Provide full citation of reading
    -Provide a one-paragraph synopsis highlighting main points and contributions
    -Provide bullet points briefly reviewing important points from the reading. This may cover: theoretical foundations, core arguments, evidence and logic for that argument, and conclusions/implications.

    For each reading, the assigned student should also generate one or two discussion questions for the class. We will use these to guide our brief review of the readings.

    Notes should be uploaded to Canvas. I will create a separate "Collaborations" page for each week. In that page, I will also create a shared google doc where the summaries can be pasted. This is intended for all students to have access to the notes so that we may learn from each other and cover the readings expeditiously.

    Importantly, all students are required to complete all readings for each week. Notes from assigned students are intended to supplement students' personal comprehension.

2) ***Weekly Assignments***: Often, but not every week, I students will be given an assignment to prepare for the following class. These will sometimes be done in groups, and other times individually. I will provide clear instructions for these assignments when they occur. Assignments will have two goals: 1) Deepen our understanding of course material; and 2) Advance our research projects.

3) ***Course Project***: Students will complete a course project. There are two options for the course project:
    Option 1: A quantitative research paper. This should emulate a quantitative academic journal article. It should have a compelling introduction, a framing (literature review), a methods section, results, discussion, and conclusion. Students may incorporate some of the methods we cover in class, or they may use different methods we did not cover.

    Option 2: Students may propose an alternative to option 1. They should propose this alternative in writing by **October 12**. My goal is that this option allows

students to use the course project to advance their personal research (e.g. Master's thesis, dissertation proposal, dissertation chapter). I will work with students to determine if their alternative proposal is suitable to be used as the course project.

The course project is due on Monday December 7. If you need more time, let me know in advance.

GRADES

Each of the three categories of assignments will factor into students' final course grade and will be weighted as follows:

Summary and Notes on Readings: 25%
Weekly Assignments: 25%
Course Project: 50%

ATTENDANCE POLICY

I'm going to be flexible. We are in a global pandemic. Just be honest and have integrity for yourself and your fellow classmates.

LATE ASSIGNMENT POLICY

I'm going to be flexible. We are in a global pandemic. Just be honest and have integrity for yourself and your fellow classmates. If you are unable to complete the summary and notes of a reading (which your classmates may rely on), please see if someone can cover for you by sending an e-mail to the class.

ADMINISTRATIVE DETAILS

Academic Integrity Standards and Consequences.

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. Students who engage in academic dishonesty will receive a zero in the assignment and potentially a zero in the course and administrative action from the university.

ADA Accommodation Statement

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time; however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website at disability.unt.edu.

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety

emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials.

Acceptable Student Behavior
Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at deanofstudents.unt.edu/conduct.

Sexual Assault Prevention
UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565-2648.

Religious Holidays
If you wish to observe a religious holidays, notify me by the tenth day of the semester of the date when you will be absent unless the religious holiday is observed on or before the tenth day of the semester. In such cases, you should notify me at least five days in advance of the date when you will be absent. I will make every reasonable effort to honor the request, not penalize you for missing the class, and if an examination or project is due during the absence, give you an exam or assignment equivalent to the one completed by those students in attendance.

COURSE SCHEDULE

Note: Readings are subject to change. All changes will be announced in class and through e-mail with advanced notice.

PART I: FOUNDATIONS

August 24: Introductions

Calarco, Jessica. Beyond the Abstract: Reading for Meaning in Academic. (http://www.jessicacalarco.com/tips-tricks/2018/9/2/beyond-the-abstract-reading-for-meaning-in-academia).

Rob Warren. 2016. "One Thing I learned by Editing Sociology of Education." (https://www.rob-warren.com/one-thing-i-learned/one-thing-i-learned-by-editing-sociology-of-education).

August 31: Origins

Morris, Aldon D. 2015. Chapter 2, "Du Bois, Scientific Sociology, and Race." in *The Scholar Denied: W.E.B. Du Bois and the Birth of Modern Sociology*.

Bonilla-Silva, Eduardo and Tukufu Zuberi. 2008. Chapter 1, "Toward a Definition of White Logic and White Methods." in *White Logic and White Methods: Racism and Methodology*, edited by Tukufu Zuberi and Eduardo Bonilla-Silva.

Steward, Quincy Thomas and Abigail A. Sewell. 2016. "Quantifying Race: On Methods for Analyzing Social Inequality." in *Rethinking Race and Ethnicity in Research Methods* edited by John H. Stanfield.

Firebaugh, Glenn. 2008. Chapter 1 "The First Rule: There Should Be the Possibility of Surprise in Social Research." in *Seven Rules for Social Research*.

Optional But Encouraged:
DuBois, W.E.B. 1996 [1899]. Chapter 1 "The Scope of this Study" and Chapter 9 (skim) "The Occupations of Negroes." in *The Philadelphia Negro*.

September 7: Labor Day

September 14: Decolonizing Methods

Smith, Linda Tuhiwai. 2012. *Decolonizing Methodologies: Research and Indigenous Peoples.* London: Zed Books.
Chapter 2 "Research through Imperial Eyes."
Chapter 3 "Colonizing Knowledge"
Chapter 10 "Toward Developing Indigenous Methodologies: Kaupapa Maori Research."
Chapter 11 "Choosing the Margins: the Role of Research in Indigenous Struggles for Social Justice.

Optional But Encouraged

Haraway, Donna, 1988, "Situated knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies* 14:575-99.

September 21: Designing Research that Matters

Firebaugh, Glenn. 2008. Chapter 2 "The Second Rule: Look for Differences That Make a Difference, and Report Them." in *Seven Rules for Social Research.*

Silver, Nate. 2015. "Introduction" in *The Signal and the Noise: Why so Many Predictions Fail—But Some Don't.* U.S.: Penguin Books.

Morgan, Stephen L. and Christopher Winship. 2015. "Introduction." in *Counterfactuals and Causal Inference: Methods and Principles for Social Research.* New York: Cambridge University Press.

Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference.* Belmont, CA: Wadsworth Cengage Learning.
Pgs. 33-42 in Chapter 2 "Statistical Conclusion Validity and Internal Validity."

PART II: METHODS BUFFET

September 28: Survey Methodology & the Total Survey Error Framework

Scarborough, William J. and Allyson Holbrook. 2021. "Chapter 8: Surveying the Social Landscape." in *Sociology in Action* edited by Kristin Kenneavy and Catherine Harnois. Thousand Oaks, CA: Sage.

Groves, Robert M., Floyd J. Fowler, Jr., Mick P. Couper, James M. Lepkowski, Eleanor Singer, and Roger Tourangeau. 2009. *Survey Methodology, Second Edition.*
Everyone:
Chapter 2, "Inference and Error in Surveys."
Assigned to Groups:
Chapter 4, "Sampling Design and Sampling Error."
Chapter 5, "Methods of Data Collection."
Chapter 7, "Questions and Answers in Surveys."

Harnois, Catherine E. 2013. *Feminist Measure in Survey Research.* Los Angeles, CA: Sage.
Chapter 6, "Multiracial Feminism and Survey Research: Re-thinking the "Impossibility of Coherence.""

October 5: New Methods of Survey Data Collection. Data Analysis

Shank, Daniel B. 2016. "Using Crowdsourcing Website for Sociological Research: The Case of Amazon Mechanical Turk." *The American Sociologist* 47: 47-55.

Read Abstract and skim findings: Leavay, Kevin E., Jeremy Freese, and James N. Druckman. 2016. "The Demographic and Political Composition of Mechanical Turk Samples." *SAGE Open* January-March: 1-17.

Newman, Andy. 2019. "I Found Work on an Amazon Website. I Made 97 Cents an Hour." *The New York Times*. November 15, 2019.

Marsden, Peter V., Tom W. Smith, and Michael Hout. 2020. "Tracking US Social Change Over a Half-Century: The General Social Survey at Fifty." *Annual Review of Sociology* 46, 109-134.

Harnois, Catherine E. 2013. *Feminist Measure in Survey Research*. Los Angeles, CA: Sage.
    Chapter 4 "Further Re-modeling with Multiracial Feminism: Highlighting Interactive Effects of Race, Ethnicity, and Gender."

October 12: Measurement and Latent Constructs

Brown, Timothy A. 2006. *Confirmatory Factor Analysis for Applied Research*. New York, NY: Guilford Press.
    Chapter 3, "Introduction to CFA."

Roos, J. Micah, Michael Hughes, and Ashley V. Reichelmann. 2019. "A Puzzle of Racial Attitudes: A Measurement Analysis of Racial Attitudes and Policy Indicators." *Socius* 5: 1-14.

Collins, Linda M., and Stephanie T. Lanza. 2009. *Latent Class and Latent Transition Analysis: With Applications in the Social, Behavioral, and Health Sciences*. New York: Wiley.
    Chapter 2, "The Latent Class Model."

Scarborough, William J., Ray Sin, and Barbara Risman. 2019. "Attitudes and the Stalled Gender Revolution: Egalitarianism, Traditionalism, and Ambivalence from 1977 through 2016." *Gender & Society* 33(2): 173-200.

October 19: Big Data

Stephens-Davidowitz. 2017. *Everybody Lies: Big Data, New Data, and What the Internet Can Tell Us About Who We Really Are*. New York: Day St.
    Chapter 1, "Introduction"

O'Neil, Cathy. 2017. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. New York: Broadway Books.

Assigned to Groups:
Chykina, Volha and Charles Crabtree. 2018. "Using Google Trends to Measure Issue Salience for Hard-to-Survey Populations." *Socius: Sociological Research for a Dynamic World* 4: 1-3.

Kennedy, Ian, Chris Hess, Amanalynn Paullada, and Sarah Chasins. 2020. "Racialized Discourse in Seattle Rental Ad Texts." *Social Forces*.

Scarborough, William J. 2018. "Feminist Twitter and Gender Attitudes. Opportunities and Limitations to Using Twitter in the Study of Public Opinion." *Socius: Sociological Research for a Dynamic World* 4: 1-16.

Optional: Johnson, Timothy P., and Tom W. Smith. "Big data and survey research: Supplement or substitute?." In *Seeing Cities Through Big Data* edited by Piyushimita (Vonu) Thakuriah, Nebiyou Tilahun, and Moira Zellner.

October 26: Experiments
Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Belmont, CA: Wadworth Cengage Learning.
    Chapter 8, "Randomized Experiments: Rationale, Designs, and Conditions Conducive to Doing Them."

Pager, Devah. 2003. "The Mark of a Criminal Record." *American journal of sociology* 108(5): 937-975.

Scarborough, William J., Danny L. Lambouths III, and Allyson L. Holbrook. 2019. "Support of Workplace Diversity Policies: The Role of Race, Gender, and Beliefs about Inequality." *Social Science Research* 79: 194-210.

Correll, Shelley J., Cecilia L. Ridgeway, Ezra W. Zuckerman, Sharon Jank, Sara Jordan-Bloch, and Sandra Nakagawa. "It's the conventional thought that counts: How third-order inference produces status advantage." *American Sociological Review* 82(2): 297-327.

November 2: Quasi Experimental Designs
Pages 103-105 in Chapter 4 "Interrupted Time Series" in *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* by Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. Belmont, CA: Wadworth Cengage Learning.

Groups Assigned to One of the Following Sets
    1) Interrupted Times Series
        Chapter 6 "Interrupted Time Series" in *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* by Shadish,

William R., Thomas D. Cook, and Donald T. Campbell. 2002. Belmont, CA: Wadworth Cengage Learning.

Train, Nguyen, Neal D. Goldstein, Jonathan Purtle, Philip M. Massey, Stephen E. Lankenau, Joanna S. Suder, Loni P. Tabb. 2020. "The heterogenous effect of marijuana decriminalization policy on arrest rates in Philadelphia, Pennsylvania, 2009-2018." *Drug Alcohol Dependence* 1(212).

2) Regression Discontinuity

Chapter 7 "Regression discontinuity" in *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* by Shadish, William R., Thomas D. Cook, and Donald T. Campbell. 2002. Belmont, CA:

Bernardi, Fabrizio. "Compensatory advantage as a mechanism of educational inequality: A regression discontinuity based on month of birth." *Sociology of Education* 87.2 (2014): 74-88.

3) Instrumental Variable Regression Models

Bollen, Kenneth A. "Instrumental variables in sociology and the social sciences." *Annual Review of Sociology* 38 (2012): 37-72.

Jaeger, Mads Meier. "What makes people support public responsibility for welfare provision: Self-interest or political ideology? A longitudinal approach." *Acta Sociologica* 49.3 (2006): 321-338.

4) Propensity Score Matching

Austin, Peter C. 2011. "An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies." *Multivariate Behavioral Research* 46: 399-424.

Sampson, Robert J., Patrick Sharkey, and Stephen W. Raudenbush. "Durable effects of concentrated disadvantage on verbal ability among African-American children." *Proceedings of the National Academy of Sciences* 105.3 (2008): 845-852.

November 9: Methods for Longitudinal Panel Data

Halaby, Charles N. 2004. "Panel Models in Sociological Research: Theory into Practice." *Annual Review of Sociology* 30: 507-544.

Muller, Chandra and Kathryn S. Schiller. 2000. "Leveling the Playing Field? Students' Educational Attainment and States' Performance Testing." *Sociology of Education* 73(3): 196-218.

Collins, Caitlyn, Liana Christin Landivar, Leah Ruppanner, and William J. Scarborough. 2020. "COVID-19 and the Gender Gap in Work Hours." *Gender, Work & Organization*.

Scarborough, William J., Caitlyn Collins, Leah Ruppanner, and Liana Christin Landivar. 2020. "COVID-19 and the Care Crisis: An Evidence-Based Policy Recommendation for Supporting Families." *SocArxiv*.

Suggestions for Further Reading (Not required for class)
> Allison, Paul D. 2009. *Fixed Effects Regression Models*. New York: Sage.
> Bryk, Anthony S., and Stephen W. Raudenbush. 1992. *Hierarchical Linear Models*. London, UK: Sage.
> Rabe-Hesketh, Sophia and Anders Skrondal. 2012. *Multilevel and Longitudinal Modeling Using Stata: Volume II: Categorical Response, Counts, and Survival Third Edition*. College Station, TX: Stata Press.
> Snijders, Tom A. B., and Roel J. Bosker. 2012. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling, 2nd Edition*. Thousand Oaks, CA: Sage.

PART III: WRITING

November 16: Planning a Journal Article and Framing the Study
Risman, Barbara J. and Patricia Y. Martin. 2012. "Basic Guide for Journal Article."

Part 1, "They Say" in: *They Say I Say: The Moves that Matter in Academic Writing* by Graff, Gerald and Cathy Birkenstein. 2009.

Part 2, "I Say" in: *They Say I Say: The Moves that Matter in Academic Writing* by Graff, Gerald and Cathy Birkenstein. 2009.

Chapter 8, "Terrorized by the Literature." in *Writing for Social Scientists: How to Start and Finish your Thesis, Book, or Article* by Howard S. Becker, 2007. Chicago, IL: University of Chicago Press.

Task: Students should select journal that would be appropriate to submit their completed study to and find an article in that journal they can use to model their own manuscript.

November 23: From Framing to Results and Conclusions
Lynn White. 2005. "Writes of Passage: Writing an Empirical Journal Article." *Journal of Marriage and Family* 67(4): 791-798.

Chapter 7, "Getting t out the Door." in *Writing for Social Scientists: How to Start and Finish your Thesis, Book, or Article* by Howard S. Becker, 2007. Chicago, IL: University of Chicago Press.

November 30: Student Presentations of Final Projects

Final class project due: December 7. Let me know if you need more time.