

**PA 5031 Fall 2022 (4 credits)  
STATISTICS FOR PUBLIC AFFAIRS**

**Welcome to PA 5031: Statistics for Public Affairs!**

**Course Overview**

This course will help you develop quantitative analysis skills that can be applied to public affairs research and practice. We will discuss the methods used to collect, describe, and analyze quantitative data. Topics will include quantitative study design, descriptive statistics, correlation, probability distributions, sampling, statistical tests, and ordinary least squares regression. We will use both Excel and Stata for statistical analyses throughout the course.

When you leave this course, you'll have the basic understanding of statistics and quantitative analysis to then grow into your own interest or abilities. This is just the beginning: be curious; advocate for more inclusive and better data; and fight anything that doesn't sit right with you. You'll be able to move forward with your Humphrey degree and decide which path is best for you. Your TAs can offer advice on other methodology courses and their usefulness/applications. Most of all, though, take your training and fight. Fight the systems that are upheld using cisgender, white, male-centered data; fight to have inclusive categories; fight to give voices to those who often don't. Analysis is not a cold math, but a dynamic tool to call out and create.

This course is intended:

- to provide familiarity with statistical terminology and methodology used in the policy arena as well as the popular media;
- to teach you to interpret and criticize statistical results;
- to enable you to use basic statistical techniques for research or policy analysis; and
- to encourage you to think about how statistics is not an apolitical discipline; but can be and has been used to create and support new evidence to inform important reforms, but also can be and has been used to uphold policy agendas that perpetuate structural racism, and systems of white supremacy, patriarchy, and settler-colonialism through statistical violence.

**Instruction team contact information**

Professor Angie Fertig, [arfertig@umn.edu](mailto:arfertig@umn.edu)

Office hours are by appointment here: <https://z.umn.edu/fertigappt>

TA office hours are held in the cubicles in HHH Room 80

TA Ruby DeBellis, [debel055@umn.edu](mailto:debel055@umn.edu)

Office hours: Mondays & Wednesdays, 4-5pm, or by appointment

TA Ruthvin Gardiner, [gardi107@umn.edu](mailto:gardi107@umn.edu)

Office hours: Thursdays, 12:30-2pm, or by appointment

TA Alice Hewitt, [hewit186@umn.edu](mailto:hewit186@umn.edu)

Office hours: Wednesdays, 1:30-3:30pm, or by appointment

TA Tess Holman, [holma274@umn.edu](mailto:holma274@umn.edu)

Office hours: Tuesdays 1-3pm, or by appointment

TA Yasin Williams, [will7216@umn.edu](mailto:will7216@umn.edu)

Office hours: Tuesdays & Thursdays 1-2pm, or by appointment

### **Inclusion Statement**

Statistics is not as objective as it seems. The field has been dominated by a small subset of privileged voices. Statistics has also been used as a tool to oppress. Two groups that have been particularly harmed with statistical weapons in the US, although there are many more, are African Americans, by biased statistical comparisons that do not account for structural racism, and Native Americans, by not being represented in most statistical analyses. To begin to rectify these past wrongs, we will explicitly put these groups at the forefront of our minds, and I provide here brief acknowledgements that ensure that everyone in the course has a basic understanding of the history of these groups.

*The University of Minnesota-Twin Cities respectfully acknowledges that the land we are on today is the traditional and ancestral homeland of the Dakota people. The University of Minnesota is founded as a land-grant institution, and we recognize that our founding came at a dire cost to the Dakota people. The Dakota were forced to cede their lands in return for goods and services, but the government did not uphold the terms of these treaties leading to widespread devastation. We recognize this painful past, and we honor Dakota peoples' history on this land, their sovereignty, and their continued contributions to our region. Minnesota comes from the Dakota name for this region, Mni Sota Maŋoce — "the land where the waters reflect the skies." The Dakota and numerous other Indigenous peoples, whose cultural, spiritual, and economic practices are intrinsically woven to this landscape, hold this land sacred. We recognize them as original stewards of this land and all the relatives within it, who had thriving and vibrant communities prior to disruption by settlers. Today, the State of Minnesota shares geography with eleven Tribal Nations. By offering this land acknowledgement, **we affirm tribal sovereignty and hold the University of Minnesota accountable to recognize and counter the historical and contemporary injustices that continue to impact Indigenous people, through mutually beneficial partnerships, research, policies, and practices that respect Indigeneity.***

*Most US-born African Americans had ancestors who were brought to the US forcibly as slaves. While enslaved, the ancestors of current African Americans were malnourished, lived in unsanitary conditions, performed excessive physical labor, and were often abused. After slavery was abolished, many states enacted codes (Jim Crow laws) that legally subjugated African Americans for about 100 years. Jim Crow laws imposed legal restrictions for non-white persons in education, transportation, hospitals, employment, marriage, voting, and every other institution that affects one's health and wellbeing. Policies like redlining (i.e., restricting financial services to neighborhoods of color) and racially restrictive covenants on deeds (i.e., that non-white people could not own the property) were common in Minnesota leading Minneapolis to have the widest racial homeownership gap among large US cities. The impact of these policies is still present today: because of these policies, African Americans still live predominately in neighborhoods with limited public investments, poor quality schools, limited green space, and high poverty and crime rates. **"We commit and rededicate ourselves to preparing our next generation of legal and public policy practitioners who will challenge racist and dysfunctional systems and devote their professional lives to the pursuit of justice and civil rights for all of society."** (Garry W. Jenkins and Laura Bloomberg, June 1, 2020)*

It is not enough to only make these acknowledgements. We will center these two groups, as well as other marginalized populations, in this class. We will also provide a section on Canvas to share resources so that you can do the work of educating yourself if they have been omitted in your prior education.

While we will explicitly center previously excluded groups, it is my intent that students from all backgrounds and perspectives be well-served by this course. I strive to create a learning environment that honors all your identities (including race, gender, class, sexuality, religion, ability, etc.), and where each class member (including the instructor and TAs) can hear and respect each other. Please let me know (anonymously if you prefer) if something is said or done in this course that is troubling or causes offense.

I strongly believe that stress inhibits learning. Thus, we strive to not create stress or anxiety in this course, and we are sensitive to the stressors that occur outside of class. If something difficult happens in your life, don't stay silent. It doesn't matter what it is (having a baby, getting married/divorced, breakups, family members/friends getting sick, financial troubles, mental health crises, etc.). We aim to prioritize supporting each other as humans. **We are your new Humphrey community.** Send someone on the teaching team an email and reach out to fellow students for support. We may be able to offer you flexibility on assignment due dates or connect you to resources you may not know about. Our goal is to not only foster intellectual nourishment, but also create an environment of social connection and personal accommodation.

### **University and School Policies and Resources**

Disability Resource Center (DRC). UMN is committed to providing equitable access to learning opportunities for all students. The DRC is the campus office that collaborates with students who have disabilities to provide and/or arrange accommodations. If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please call 612-626-1333 to arrange a confidential discussion. For more information, please see [diversity.umn.edu/disability](https://diversity.umn.edu/disability). If you are registered with the DRC and have a current letter requesting accommodations, please contact me as early in the semester as possible to discuss.

Center for Writing's Student Writing Support. Student Writing Support provides free writing instruction for all University of Minnesota students – graduate and undergraduate - at all stages of the writing process. They help students develop productive writing habits and revision strategies via in-person consultations. See [writing.umn.edu](https://writing.umn.edu).

Academic Policies. For links to UMN and Humphrey School policies, please see <https://z.umn.edu/PolicyStatements>. Policies include information on student conduct, scholastic dishonesty, legitimate absences, sexual harassment, equal opportunity, disability accommodations, and more. It is your responsibility to understand these policies; ignorance of the policies is not an acceptable excuse for violating a policy.

Please note that if a class session falls on a holiday that you celebrate, your absence from class is excused. I am happy to meet with you to go over anything they missed. Here is a [relevant UMN administrative policy](#) on this.

### **Covid-related Rules**

You should stay at home if you experience any signs of illness or have a positive [COVID-19 test](#) result. If this occurs, please consult with your healthcare provider about an appropriate course of action. I will follow these same protocols and will let you know if the delivery of this course must be temporarily changed as the result of my own circumstances. Absences related to illness, including COVID-19 symptoms, for yourself or your dependents, are [legitimate “excused” absences](#).

**Vaccines:** COVID-19 Vaccinations (or approved exemptions) are [required for all students and employees](#). Learn about vaccine and booster appointments on campus by visiting the FAQ on [Get the Vax](#) page.

**Face coverings:** Up-to-date policy information is available on the [Safe Campus](#) page. The University expects all community members to respect those who choose to wear a mask, as well as those who choose not to wear one. I intend to wear a mask in class myself, and I fully support your individual choices around masking. Indoor masking continues to be an important tool in high-risk situations. High-quality masks (N-95 or certified KN-95) will be available to students Fall 2022. Check the [Safe Campus](#) website for information on the location(s) for each campus.

**Testing:** Information on *When, Where, and What if* for testing is available on [MTest](#) webpage.

The above policies and guidelines are subject to change. The University regularly updates [pandemic guidelines](#) in response to guidance from health professionals and in relation to the prevalence of the virus and its variants in our community.

### **Course Logistics**

#### **Meeting dates, times, and locations:**

This course is scheduled as blended course. For the delivery of this course, I intend to offer both in-person and remote options as follows:

**Class sessions:** Tuesdays and Thursdays at 11:15am – 12:30pm

Class sessions will be taught in-person in Anderson Hall 230 and over zoom (link on Canvas) simultaneously. You decide every Tuesday or Thursday whether to come in-person or attend remotely and you do not need to notify anyone of your choice. The class sessions will be video recorded, so you can also watch the class video if you miss class.

**Lab sessions:** Fridays at 9:45am – 11:00am (in-person only in HHH 85)  
Fridays at 11:15am – 12:30pm (in-person only in HHH 85)  
Fridays at 12:45pm – 2:00pm (zoom only, link on Canvas)  
Fridays at 2:15pm – 3:30pm (in-person only in HHH 85)

Lab sessions are led by the TAs and are where you will learn how to use the statistical software to do the assignments. Note that 3 of the lab sessions are in-person only and one is zoom only. You should try to attend the session you registered for, but you can attend a different session if needed. The remote session will be video recorded so that you can watch the lab video if you miss lab.

Canvas Course Website:

All assignments will be turned in and graded on the Canvas course website (canvas.umn.edu). Required online discussions will take place on designated discussion boards on Canvas. Extra readings and resources will also be available there. Please make sure you set course settings to receive course announcements and course conversations (emails) at least the same day.

Required Readings:

- Freedman D, Pisani R, and Purves R (2007) *Statistics*, 4<sup>th</sup> edition, New York: Norton. Available at the UMN bookstore but search online as well (Used and rental options cost \$50 or less).
- Maier MH and Imazeki J (2013) *The Data Game: Controversies in Social Science Statistics*, 4<sup>th</sup> edition, New York: M.E. Sharpe, Inc. A new book costs around \$50. This book is also available electronically for free from the UMN libraries (search the MNCAT Discovery database at lib.umn.edu, or click [here](#)).
- Additional readings will be posted on the course website.

Required Hardware and Software:

- *Stata 16 or higher*. You can run Stata remotely from your home computer without purchasing a personal copy of Stata by using AppsToGo, which can be installed following these [instructions](#). If you want to purchase Stata for your personal computer, you can download it [here](#). Stata/BE for 6 months is \$48, or you can purchase the annual or perpetual license if you plan to take more statistics classes.
- *Microsoft Excel*. Microsoft Office 365 Pro Plus is available free of charge to students. Download [here](#).
- *Internet-connected device*. We will be using a polling platform during class that will require an internet connection.

Course Requirements

Before we get to the actual assignments, please note that students are expected to work cooperatively in groups assigned by the instruction team. This is a required part of the course. Each student will be assigned to one group for the whole semester. Groups will work together on 2 reports, one reading analysis, and one presentation. In addition, your group partners will provide the instruction team with evaluations that will inform part of your participation grade. Group work adds up to 42% of your grade. So, it is in your interest to do your part to make your group productive. Learning to work in teams is an important skill.

Five Reports (40% of course grade). We will be using individual-level public data used to inform policymaking to write the reports. Each report will allow you to apply newly acquired statistical skills to policy-relevant data. You will be able to choose survey questions of interest to you to focus on for your reports. Below is the schedule of report due dates and their grading weight:

Assignment	Due Date	Grading Weight
1 Individual	Sep 19	5%
2 Individual	Oct 3	7%
3 GROUP	Oct 17	10%
4 GROUP	Nov 14	8%
5 Individual	Dec 5	10%

One Group Reading Analysis (10% of course grade). Each group will be assigned to write a 500-word essay either about one reading from a list of assigned readings (see end of syllabus for the list) or one current news article of your choice. This essay will be posted to canvas to stimulate online discussion.

One Group Journal Article Presentation (10% of course grade). Each group will be assigned to make a 5 to 10-minute video presentation of a journal article (see end of the syllabus for the list). In the presentation, each group must provide the research question, the hypothesis, the regression equation used to test the hypothesis, a description of the sample and measures used, the regression results, an interpretation of the results, and some limitations of the study. Each group should meet with the instructor with a draft of their presentation before recording the video.

Nine Quizzes (8% of course grade). Quizzes will be posted on Canvas on the Thursday before they are due. Quizzes will be due before Tuesday class each week until mid-November. There are a total of 9 quizzes, each worth 1% of the course grade. However, the lowest score will be dropped. These quizzes are intended to incentivize you to keep up with the readings, lectures, and materials. Working through exercises will also help you better understand new concepts.

Take-Home Midterm Exam (10% of course grade). There will be one take-home midterm exam due (via Canvas) by midnight Monday, October 24. The exam should take no more than 2 hours to complete, and you will have a 3-day window to work on the exam. The exam is open book.

Take-Home Final Exam (10% of course grade). There will be one final exam due (via Canvas) by midnight Thursday, December 15. The exam should take no more than 3 hours to complete, and you will have a 3-day window to work on the exam. The exam is open book.

Participation (12% of course grade). The participation grade will be primarily assessed based on the following 3 activities:

- Active participation in your group (4%). Members of your group will provide the instruction team with a peer evaluation of your participation and effort on the group assignment.
- Responding to reading analyses (4%). Each student is expected to respond to at least five reading analyses within 1 week of the posting.
- Providing feedback to video presentations (4%). Each student is expected to provide constructive feedback to at least five video presentations.

**Reading Analysis Schedule**

Each week three groups will post essays to stimulate discussion. In the first few weeks, both posts will be on readings, but after we've covered some basics, more and more posts will be based on a statistics-related or statistics-heavy current news article of your group's choice. Each student will respond to 5+ posts (of the ones that they didn't write) over the semester.

	<b>Group</b>	<b>Post Due</b>	<b>Reading</b>
1	Alpha	15-Sep	<i>The Data Game</i> Chapter 2 "Demography"
2	Beta	15-Sep	<i>The Data Game</i> Chapter 3 "Housing"
3	Gamma	15-Sep	<i>The Data Game</i> Chapter 4 "Health"
4	Delta	22-Sep	<i>The Data Game</i> Chapter 5 "Education"
5	Epsilon	22-Sep	<i>The Data Game</i> Chapter 6 "Crime"
6	Zeta	22-Sep	<i>The Data Game</i> Chapter 8 "Wealth, Income, and Poverty"
7	Eta	29-Sep	<i>The Data Game</i> Chapter 9 "Labor Statistics"
8	Theta	29-Sep	<i>The Data Game</i> Chapter 11 "Government"
9	Iota	29-Sep	<i>The Data Game</i> Chapter 12 "Public Opinion Polling"
10	Kappa	6-Oct	news article selected by your group
11	Lambda	6-Oct	news article selected by your group
12	Mu	6-Oct	news article selected by your group
13	Nu	13-Oct	news article selected by your group
14	Xi	13-Oct	news article selected by your group
15	Omicron	13-Oct	news article selected by your group
16	Pi	20-Oct	news article selected by your group
17	Rho	20-Oct	news article selected by your group
18	Sigma	20-Oct	news article selected by your group
19	Tau	27-Oct	news article selected by your group
20	Upsilon	27-Oct	news article selected by your group
21	Phi	27-Oct	news article selected by your group
22	Chi	3-Nov	news article selected by your group
23	Psi	3-Nov	news article selected by your group
24	Omega	3-Nov	news article selected by your group
25	Tilde	10-Nov	news article selected by your group
26	Ampersand	10-Nov	news article selected by your group
27	Asterisk	10-Nov	news article selected by your group
28	Hashtag	17-Nov	news article selected by your group
29	Plus	17-Nov	news article selected by your group
30	Infinity	17-Nov	news article selected by your group

**Journal Article Video Presentation Schedule**

Each group will create a video presentation on one of the following journal articles at the end of the semester.

	<b>Group</b>	<b>Journal Article</b>
1	Alpha	Miller S, Wherry L. (2022) Covering undocumented immigrants: the effects of a large-scale prenatal care intervention. NBER Working Paper 30299.
2	Beta	Pollakowski, HO, Weinberg, DH, Andersson F, Haltiwanger JC, Palloni, G, Kutzbach MJ. (2022) Childhood Housing and Adult Outcomes: A Between-Siblings Analysis of Housing Vouchers and Public Housing. American Economic Journal: Economic Policy 14(3): 235-272.
3	Gamma	Greenwood BN, Hardeman RR, Huang L, Sojourner A. (2020) Physician-patient racial concordance and disparities in birthing mortality for newborns. PNAS 117(35).
4	Delta	Rothstein J, Schanzenbach DW. (2021) Does money still matter? Attainment and earnings effects of Post-1990 school finance reforms. NBER Working Paper 29177.
5	Epsilon	Deza M, Lu T, Maclean JC. (2021) Office-based mental healthcare and juvenile arrests. NBER Working Paper 29465.
6	Zeta	Parolin Z, Ananat E, Collyer S, Curran M, Wimer C. (2021) The initial effects of the expanded child tax credit on material hardship. NBER working paper 29285.
7	Eta	Charles KK, Johnson MS, Tadjfar N. (2021) Trade competition and the decline in union organizing: evidence from certification elections. NBER Working paper 29464
8	Theta	Cohen L, Li B. (2021) The political economy of Anti-Bribery Enforcement. NBER working paper 29624.
9	Iota	AAPOR (2021) An Evaluation of the 2020 General Election Polls.
10	Kappa	Armour P. (2018) The Role of information in disability insurance application: an analysis of the social security statement phase-in. American Economic Journal: Economic Policy, 10(3): 1-41.
11	Lambda	Myers SL, Sabol WJ, Xu M. (2021) Determinants of Racial Disparities in Female Incarceration Rates, 2000-2018. The Review of Black Political Economy.
12	Mu	Bacher-Hicks A, Goodman J, Green JG, Holt M. (2021) The covid-19 pandemic disrupted both school bullying and cyberbullying. NBER working paper 29590.
13	Nu	Exley CL, Lehr NH, Terry SJ. (2022) Nonprofits in Good times and bad times. NBER working paper 29630
14	Xi	Kuka E, Stuart BA. (2021) Racial inequality in Unemployment Insurance receipt and take-up. NBER working paper 29595.
15	Omicron	Blanchflower DG, Feir D. (2021) Native Americans' Experience of chronic distress in the USA. NBER Working Paper 29119.
16	Pi	Bartel AP, Rossin-Slater M, Ruhm CJ, Slopen M, Waldfogel M. (2021). Support for paid family leave among small employers increases during the covid-19 pandemic. NBER Working paper 29486.
17	Rho	Miller AR, Segal C, Spencer MK. (2021) Effects of Covid-19 shutdowns on domestic violence in US cities, NBER Working paper 29429.



	<b>Group</b>	<b>Journal Article</b>
18	Sigma	Halloran C, Jack R, Okun JC, Oster E. Pandemic Schooling mode and student test scores: Evidence from US states. NBER Working Paper 29497
19	Tau	Howell ST, Kuchler T, Snitkof D, Strelbel J, Wong J. (2021) Racial Disparities in Access to Small Business Credit: Evidence from the Paycheck Protection Program. NBER Working Paper 29364
20	Upsilon	Calem, P, Abdul-Razeq, Y. (2022) Obstacles to Household Financial Inclusion: Do Branch Accessibility and Bank Size Matter? Bank Policy Institute. Report.
21	Phi	Goldin C, Kerr, SP, Olivetti C. (2022) When the kids grow up: Women's employment and earnings across the family cycle. NBER Working Paper 30323
22	Chi	Sanders NJ, Barreca A. "Adaptation to environmental change: Agriculture and the unexpected incidence of the Acid Rain Program" NBER Working Paper 28591
23	Psi	Cuevas A, Cuevas R, Desmet K, Ortuno-Ortin I. (2021) The gender gap in preferences: Evidence from 45,397 Facebook interests. NBER Working Paper 29451.
24	Omega	Dave DM, Yang M. (2020) Lead in drinking water and birth outcomes: A tale of two water treatment plants. NBER Working Paper 2020.
25	Tilde	Kaestner R, Malamud O. (2021) Headstrong girls and dependent boys: Gender differences in the labor market returns to child behavior. NBER Working Paper 29509.
26	Ampersand	Tanaka S, Teshima K, Verhoogen E. (2021) North-South Displacement effects of environmental regulation: The case of battery recycling. NBER Working Paper 29146.
27	Asterisk	Fertig AR, de Brito JN, Trofholz AC, Berge JM (2022) "Maternal employment and child weight-related health" Social Science & Medicine.
28	Hashtag	Forsythe E, Kahn LB, Lange F, Wiczer DG. (2022) Where have all the workers gone? Recalls, retirements, and reallocation in the Covid recovery. NBER Working Paper Series 30387.
29	Plus	Haushofer J et al (2022) Stress, Ethnicity and Prosocial Behavior. NBER Working Paper Series 30363.
30	Infinity	Donohue JJ, Cai, SV, Bondy MV, Cook PJ. (2022) More guns, more unintended consequences: The effects of right-to-carry on criminal behavior and policing in US cities. NBER Working Paper Series 30190.

**Detailed Course Schedule with Deadlines (All subject to change with notice)**

	Topic	Monday	Tuesday	Thursday	Friday	Readings
<b>Week 1</b>	Introduction				Lab 1	FFP Chs. 1-2
<b>Week 2</b> Sep 12-16	Descriptive Statistics		Quiz 1 due	Posts 1-3 due	Lab 2	FFP Chs. 3-4
<b>Week 3</b> Sep 19-23	Descriptive Statistics	Report 1 due	Quiz 2 due	Posts 4-6 due Responses to Posts 1-3 due	Lab 3	FFP Chs. 5-6
<b>Week 4</b> Sep 26-30	Correlation		Quiz 3 due	Posts 7-9 due Responses to Posts 4-6 due	Lab 4	FFP Chs. 8-12
<b>Week 5</b> Oct 3-7	Probability Distributions	Report 2 due	Quiz 4 due	Posts 10-12 due Responses to Posts 7-9 due	Lab 5	FFP Chs. 16-18
<b>Week 6</b> Oct 10-14	Sampling		Quiz 5 due	Posts 13-15 due Responses to Posts 10-12 due	Lab 6	FFP Chs. 19-20
<b>Week 7</b> Oct 17-21	Sampling	Report 3 due	Quiz 6 due	Posts 16-18 due Responses to Posts 13-15 due	Lab 7	FFP Chs. 21 & 23
<b>Week 8</b> Oct 24-28	Statistical Tests	<b>Midterm: 10/21 - 10/24</b>		Posts 19-21 due Responses to Posts 16-18 due	Lab 8	FFP Chs. 26-27
<b>Week 9</b> Oct 31-Nov 4	Statistical Tests		Quiz 7 due	Posts 22-24 due Responses to Posts 19-21 due	Lab 9	FFP Chs. 28-29
<b>Week 10</b> Nov 7-11	Multivariate OLS		Quiz 8 due	Posts 25-27 due Responses to Posts 22-24 due	Lab 10	Ritter Sec. 1-4
<b>Week 11</b> Nov 14-18	Multivariate OLS	Report 4 due	Quiz 9 due	Posts 28-30 due Responses to Posts 25-27 due	Lab 11	Ritter Sec. 5
<b>Week 12</b> Nov 21-25	Multivariate OLS			NO CLASS	NO LAB	Ritter Sec. 6
<b>Week 13</b> Nov 28-Dec 2	Multivariate OLS			Responses to Posts 28-30 due	Lab 12	Ritter Sec. 7-11
<b>Week 14:</b> Dec 5-9	Review	Report 5 due		Presentations due	Lab 13	
<b>Week 15</b>			NO CLASS	<b>Final: 12/9 - 12/15</b>		