

## PSCI 3300.03: Political Science Research Methods

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**Spring 2024**

MWF 1:00-1:50 PM

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### Course Description

The primary purpose of this course is to introduce students to the methods and terminology used by social scientists. We will examine basic concepts used in research (such as theories, hypotheses, independent and dependent variables, reliability and validity, and sampling). We will examine basic statistical techniques that are used to examine data, with an emphasis on interpreting the results (ranging from descriptive statistics to crosstabs, correlation, and regression). We will also examine such non-quantitative approaches as experiments, case studies, and comparative method, which are also an important part of the science of studying politics.

Students are expected to finish the course readings before the class period for which they are assigned, attend class regularly (showing up to class on time and staying through the end), and participate actively in class discussion where relevant. The course will be graded using four non-cumulative examinations, four homework assignments (which will require the use of SPSS or PSPP statistical software for data analysis), and eleven shorter exercises or quizzes (most of which will be completed online through Canvas).

Upon completion of this course, students should be able to understand and interpret most research published in political science journals, as well as public opinion polls, surveys, and research findings reported in the news. Students should be able to formulate theoretical arguments and testable hypotheses, and to test these hypotheses in a variety of ways. As a result, students who complete this course should be prepared for future coursework in the social sciences, for starting to pursue their own research, and for a life as an educated and informed citizen.

This course also fulfills the CLASS requirement for Communication and Digital Skills: "At the end of this course, students should be able to demonstrate effective communication using a digital technology platform and do at least two of the following: (1) demonstrate the ability to communicate a central idea effectively using appropriate organization/structure, (2) demonstrate the ability to develop content at an advanced level using a combination of effective supporting materials, (3) demonstrate the ability to engage in verbal and nonverbal communication behaviors that are appropriate for the audience and adhere to the conventions of the medium selected (written, oral, or visual)." The digital technology platform to be used is SPSS or PSPP statistical software, which will be used in four of the course's homework assignments. The ability to develop content at an advanced level will be demonstrated in these homework assignments, where statistical analysis will be used to produce tables, figures, and other output that will be used to evaluate hypotheses about political outcomes. The ability to engage in appropriate written communication will also be demonstrated in these homework assignments, where the results of the statistical analyses will be analyzed and interpreted carefully to draw conclusions about the hypotheses being tested and discuss implications for the study and practice of politics.

### Required Texts

• **Book:** This should be available at the usual Denton locations, or maybe cheaper through online bookstores -- but wherever you buy it, be sure to get the correct edition!

Paul M. Kellstedt, Guy D. Whitten, and Steven A. Tuch (2023). *The Fundamentals of Social Research*, 1st ed. Cambridge University Press. ISBN 978-1-107-56916-4. *This ISBN number is for the paperback version of the book, which is the version I ordered through the bookstore, but any format of the book is fine as long as it is the correct edition. Note that this is different from earlier editions published by Kellstedt*

and Whitten under the name *The Fundamentals of Political Science Research*.

- **Canvas:** The remaining readings are available online through Canvas, which you can access by using your EUID to log in at <<https://unt.instructure.com>>. It would be smart to print or save these readings early in the semester, because Internet connections disappear at inconvenient times (like the night before an exam).
- **SPSS or PSPP software:** Some of the homework assignments toward the end of the semester will require the use of SPSS statistical software, which is installed in many UNT computer labs. If you are interested in getting your own copy of SPSS rather than depending on computer labs, you may order it through UNT at a substantial student discount. You will need the "SPSS Statistics Standard" version of the SPSS Grad Pack, which is available for Mac or Windows at a cost of \$61.95 (6 month rental) or \$92.95 (12 month rental) at the following site (you can use any version of SPSS that will install and run on your computer – we won't be using any advanced features that require the absolute latest version):

<<https://untsystem.onthehub.com/WebStore/ProductsByMajorVersionList.aspx>>

There is also a free statistical package called PSPP that is very similar to SPSS and can be used for all of the homework assignments. Students are welcome to use this if they would like to avoid paying for their own SPSS license or having to go to a campus computing lab, although future employers may prefer to hire people with experience using the actual SPSS package, and some of the more advanced statistical techniques discussed at the end of the class are not currently implemented in PSPP (although PSPP works just as well as SPSS for the techniques used in course homework assignments). This may be downloaded freely for Mac, Windows, and Linux platforms:

<<https://www.gnu.org/software/pspp/get.html>>

### Course Requirements

*Please note that this course is not graded on attendance, and almost all assignments except for the exams can be completed online, to make sure that students have no incentive to come to class if they have recently been exposed to or are showing symptoms of Covid-19, the flu, or similar conditions that are common in the Denton area this time of year. This does NOT mean that you are not expected to come to class whenever you are healthy, though; class attendance is strongly recommended. Throughout the Covid era, students who rarely came to class have done poorly in my courses, even if they thought they got enough information from friends, GroupMe, or elsewhere. Seeing and hearing the course material in person, and being part of the class discussion of this material, makes a huge difference in learning and in grades.*

(1) **Examinations:** Four (noncumulative) exams are required. The exams will involve a mixture of questions to measure understanding of the wide variety of material covered in this course, including some multiple choice and some short answer (some requiring the interpretation of results and others requiring calculations). Each exam will be worth **15%** of the total course grade. Be sure to be on time; once the first student leaves the exam, anybody else who enters to take the exam will lose five letter grades.

[*Note that if an exam can not be held in person due to the Covid situation, it will be converted to a take-home short answer/essay format to be turned in through Canvas by the end of the scheduled exam time. Any change will be announced via Canvas email as well as in class.*]

(2) **Assignments (Preparation for Class):** An important part of a course like this is making sure that students understand the concepts as the semester is moving along. Students are expected to prepare for each class meeting by doing the assigned readings and thinking about the assigned discussion topics as described in the syllabus before class. This will be evaluated with **11 assignments, ten of which must be completed through Canvas before class on the day when they are assigned – note that the other one will be completed in class as listed in the syllabus.** Some of these are open-book/open-note quizzes on the readings assigned for that day, and others are brief applications of topics covered in the day's assigned readings or in recent class meetings that will then be discussed in class that day. Because each of these assignments is meant to prepare for classroom discussion on the day for which it was assigned, to receive credit, it must be completed **by the start of class on the due date** listed in the syllabus (**no assignments will be accepted after that time**). Together, these assignments will be worth **20%** of the total course grade; each student's lowest assignment grade will be dropped.

(3) **Quantitative Homework:** There is no better way to learn concepts than through hands-on experience. There will be **four (4) homework assignments**, which will each be posted on Canvas one week before the due date. Together, these assignments will be worth **20%** of the total course grade; each student's lowest homework grade will be dropped. Unlike the online assignments, these homework assignments may be turned in after the listed due date for partial credit, because these are important learning experiences that help you develop the skills that you are expected to have after completing this course. Homework assignments turned in after the start of class on the due date will face a late penalty, though.

#### **Warning about Canvas Gradebook:**

Please note that the gradebook in Canvas may not give you a fully accurate summary of your grade for this course, because that doesn't handle this grading scheme very well. In particular, Canvas struggles with missing or late work (rather than treating a missed assignment as a zero unless/until it is eventually turned in, Canvas leaves it out of the calculation, wrongly suggesting that the course grade is better than it really is), and with half-points (it will treat a score of 9.5/10 as 9/10). This syllabus tells you which assignments count for how much of the overall course grade; if you are having problems determining your grade, you are always welcome to talk with the instructor during office hours (but remember that I can not discuss grades over phone or email).

#### **Course Rules**

(1) **Classroom:** All students must treat the instructor, the other students, and the classroom setting with respect. This includes arriving on time and staying for the entire class (or notifying the instructor in advance if this will not be possible), turning off cell phones and similar devices during class, and refraining from reading, passing notes, talking with friends, and any other potentially disruptive activities. This also means showing respect for alternative opinions and points of view, listening when either the instructor or a fellow student is speaking to the class, and refraining from insulting language and gestures.

Following departmental policy, any student engaging in unacceptable behavior may be directed to leave the classroom. Additionally, the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated UNT's Code of Student Conduct (which may be found at <https://deanofstudents.unt.edu/conduct>).

(2) **PowerPoint:** The instructor's lecture notes and PowerPoint slides will not be posted online or otherwise handed out to students, except under special circumstances (such as a primarily online/remote course). If you are unable to attend one or more class meetings, make arrangements with another student to borrow or copy their notes.

Also be aware that any PowerPoint slides presented to the class will not contain all material that will be necessary for an "A" grade on course exams. The instructor's verbal lecture will also include important information that is not presented directly on the slides, so students should be careful to take notes on verbal lecture material as well as the brief overviews presented on the slides.

(3) **Online Resources:** Any class recordings, videos, PowerPoint slides, or other similar course materials are reserved for use only by students in this class for educational purposes. The materials should not be shared outside the class in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

(4) **Keep Backups:** For any assignments that are turned in physically during the semester, students must keep an extra copy of each assignment until the instructor has returned the graded copy of that assignment. Students must also keep graded, returned copies of all such assignments. Failure to do so will invalidate any potential question or protest about grades.

Also, students are responsible for maintaining backups of any written work for this course, preferably in a location away from the main computer that is being used (such as online backup through Dropbox, Google Drive, or Microsoft OneDrive). No extensions will be granted for work that is not turned in on time because of

computer, hard drive, or printer failure, theft, power surge, or similar causes.

(5) **Makeup Exams:** Makeup exams, whether for full credit or not, will take place only on UNT's designated "Reading Day" at the end of the last week of classes. Only one time slot on Reading Day will be offered for all makeup exams in any of the instructor's courses; students seeking to take a makeup exam in this time slot must contact the instructor no later than 5 PM on Tuesday of the last week of classes. Makeup exams in classes that usually use multiple choice tests will be offered as short answer/essay examinations (regardless of the type of exam that is being made up) over the same material that would have been covered by the original exam.

Full-credit makeup examinations are given only with prior instructor approval (if at all possible) and with appropriate documentation. Note that the documentation must indicate why you could not be in class *at the time of the originally scheduled test*. If appropriate documentation is not provided, the makeup examination can still be taken, but will face a grade penalty of five letter grades (50%). Makeup exams (whether full or reduced credit) are only available for students who missed the original exam; this is not an option for trying to retake an exam to get a higher score.

(6) **Late Work:** The scheduled final exam time represents the conclusion of the course. No late assignments or documentation will be accepted after the conclusion of this two-hour period, and no makeup exams will be offered after this time.

(7) **Academic Integrity, Plagiarism, and Generative AI/Chatbots:** All work turned in for this course must be your own original work. Such actions as plagiarizing by using a source without giving it appropriate credit, or using material written by somebody else or by generative AI/chatbots like ChatGPT and presenting it as your own, represent violations of academic integrity. Please note that penalties will apply even if you did not knowingly intend to plagiarize or cheat – you must be familiar with the rules of academic integrity and doing your own original work, whether this is at UNT or later in your career, and ignorance is no excuse.

Academic integrity is defined in the UNT Policy on Student Standards for Academic Integrity: <<https://policy.unt.edu/policy/06-003>>. This covers such issues as cheating (including use of unauthorized materials or other assistance on course assignments or examinations), plagiarism (whether intentional or negligent), forgery, fabrication, facilitating academic dishonesty, and sabotage. Any suspected case of academic dishonesty will be handled in accordance with current University policy and procedures, as described at <<https://vpaa.unt.edu/ss/integrity>>. If this is your first academic integrity violation, you can expect a failing grade on the assignment, and you will be reported to the university's Academic Integrity office; repeat violations in one or more courses will lead to stronger sanctions up to and including expulsion from UNT.

(8) **Covid-19:** Based on the current Covid-19 situation, UNT is open for business as usual. Our class will meet face-to-face on the usual schedule listed in this syllabus, with each class meeting including both lecturing by the instructor and class discussion of the assigned topics. Please note that unless circumstances change, I will not record the class meetings for posting online, nor will I conduct class meetings in a hybrid format that is broadcast live through Canvas. I recommend making arrangements with one or more other students in the course to share copies of notes with each other in case you might have to miss class.

I have set up this course to ensure that there is no grade penalty for missing class due to suspected or confirmed Covid. The only in-person grade component is the examinations, which may be made up on Reading Day at the end of the semester; all other class assignments are turned in through Canvas. The latest CDC guidance on avoiding or managing Covid-19 is at <<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>>. Free vaccination is offered by Denton County Public Health, as well as through CVS, Walgreens, and many other health care providers: <<https://dentoncounty.quickbase.com/db/bq5nwntc6>>.

(9) **Exceptions:** Any exceptions to these policies are given at the instructor's discretion -- only with prior approval where possible, and only with appropriate documentation. Before asking for an exception, be aware that I will not grant exceptions that might be perceived as giving one student an unfair advantage or an opportunity that was not available to the remaining students who followed the rules correctly, turned in their work on time, and so on.

(10) **Other Teaching Policies:** The instructor's teaching-related policies and expectations are described in more detail at <<https://www.paulhensel.org/teachgrade.html>>. Failure to visit that web site does not constitute a valid excuse for ignorance of these policies. In particular, note that I do not "round up" grades -- an 89.9 counts as a B rather than an A -- and the only extra credit opportunity, if any, will be offered in class on the last class period before Thanksgiving (for fall semesters) or spring break (for spring semesters).

(11) **Discussing Grades:** Consistent with UNT rules, instructors (whether professors, teaching fellows, or teaching assistants) may not discuss student grades over email, telephone, or in any other setting that is not face-to-face due to privacy and security concerns. If you have questions about your grades, you may meet with me during office hours, or I will be glad to make an appointment at a more convenient time.

(12) **Canceling Class:** I will never cancel class on my own for weather-related reasons; unless you hear official word through UNT's Eagle Alert service, class will be held at the regular time and place. Students who are unable to make it to class due to weather are still responsible for any material covered in lecture that day. If class is canceled, the next class meeting after school resumes will cover the material that would have been covered in the canceled class meeting, and a revised syllabus will be posted as soon as practical to adjust the schedule of remaining class meetings. More detail on the instructor's weather-related policies is provided at <<https://www.paulhensel.org/teaching.html>>.

Note that if class is canceled (and especially if the entire university is closed due to weather or other concerns), I will attempt to send class emails through Canvas to explain any relevant changes in the class schedule and/or syllabus. If you do not receive any such emails, please log in to Canvas directly (<https://unt.instructure.com>) and check the Announcements tab; in the February 2021 power blackout many students reported not receiving Canvas emails, but the announcements were all available on Canvas for students to see if they logged in to it directly. If the entire Canvas site is also not functioning, I will attempt to post these announcements to the online syllabus page for this course on my web site (<https://www.paulhensel.org/>>).

(13) **Changes:** The content of this syllabus may be modified by the instructor at any time during the semester if deemed necessary. Any such changes will be announced in class as well as via a Canvas announcement; students are responsible for making sure that they check the email account that is on file with Canvas, and/or check the announcements tab for this course in Canvas in case there is some sort of email problem.

## UNT Policies

### **Americans with Disabilities Act**

UNT is committed to making reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must register with the Office of Disability Access (ODA) each semester to verify their eligibility. If a disability is verified, the ODA will contact me with a letter listing recommended accommodations; you will then need to discuss these with me so we can decide how to meet your specific needs in the course. It is advisable to discuss these issues as early as possible in the semester to avoid any delay in implementation; **I can not grant you an accommodation that you did not discuss with me before the assignment in question was due.** For additional information see the Office of Disability Accommodation website at <<https://www.unt.edu/oda>> or contact them by phone at (940) 565-4323.

### **Prohibition of Discrimination, Harassment, and Retaliation**

UNT prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

## Sexual Discrimination, Harassment, and Assault

UNT is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these acts of aggression, please know that you are not alone. The federal Title IX law makes it clear that violence and harassment based on sex and gender are Civil Rights offenses. UNT has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

UNT's Dean of Students web site at <<https://deanofstudents.unt.edu/resources>> offers a range of on-campus and off-campus resources to help support survivors, depending on their unique needs. The Student Advocate may be reached through email at [SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu) or by calling the Dean of Students' office at (940) 565-2648. You are not alone; we are here to help.

## Student Resources at UNT

In recent semesters, many students have experienced unexpected health, family, work, or other issues. If any such issue comes up, please do not hesitate to contact me, so we can try to work out a reasonable solution. Remember, I can't help you if you don't let me! Here are a few resources that UNT has made available for students facing unexpected difficulties:

- **Student Counseling and Testing Services** (couples counseling, individual/group sessions to help manage depression, eating disorders, grief, self esteem/identity, substance abuse, stress, and much more):

List of services: <https://studentaffairs.unt.edu/counseling-and-testing-services/services>

FAQ: <https://studentaffairs.unt.edu/counseling-and-testing-services/resources-and-self-help/faq>

Emergency contacts: <https://studentaffairs.unt.edu/student-counseling/emergency-contacts>

- **Student Health and Wellness Center** (offering everything from Covid testing to flu vaccines, gynecological care, X-rays and lab diagnostics, vision and dental care, and much more):

<https://studentaffairs.unt.edu/student-health-and-wellness-center>

- **Other Wellbeing and Safety Resources:**

<https://studentaffairs.unt.edu/wellbeing-and-safety>

## Instructor's Web Site

The instructor maintains a web site at <<https://www.paulhensel.org>> that includes -- among other things -- teaching policies, solutions to common student writing problems, syllabi for my other courses, and Internet resources for students of international relations. Students are strongly encouraged to become familiar with this web site during the semester. The online version of this syllabus can be found at:

<<https://www.paulhensel.org/Teaching/psci3300.html>>.

## Course Schedule

*"There are three kinds of lies: lies, damn lies, and statistics."*

*--attributed to Benjamin Disraeli/Mark Twain*

*"People can come up with statistics to prove anything, Kent. 40% of all people know that."*

*--Homer Simpson*

### 1. Monday, Jan. 15: NO CLASS (MLK Day)

### 2. Wednesday, Jan. 17: Overview of Course

- *Assigned Readings:* None

• *Overview:* Introduction to the course and the instructor; no substantive lecture today.

• **Assignment #1 due by 5 PM on 1/26/24: Syllabus quiz (available in Canvas);** due to students adding the course, this quiz will remain open for two weeks; all other quizzes will be locked at the start of the class period on the day when they are due, because they are meant to assess preparation before class.

### 3-5. Friday, Jan. 19 - Wednesday, Jan. 24: The Scientific Approach to Knowledge

- Day 1 of this topic: The scientific approach to knowledge
  - KWT (Kellstedt-Whitten-Tuch book): section 1.1, "Social Science?" (pp. 1-3)
  - Canvas*: John Allen Paulos (1995), *A Mathematician Reads the Newspaper*, pp. 151-153 ("FDA Caught between Opposing Protesters: Statistical Tests and Confidence Intervals").
- Day 2: Theories and hypotheses
  - KWT: chapter 1 ("The Scientific Study of Society": sections 1.2-1.5, pp. 4-19)
- Day 3: The scientific research process
  - Assignment #2 due before class today: Theory & Hypotheses exercise (available in Canvas)**
  - KWT: chapter 2 ("The Art of Theory Building," all) and section 12.1 ("Two Routes Toward a New Scientific project," pp. 246-251)
- *Overview of Topic*: The first general topic will introduce students to the scientific study of politics. We will discuss how the scientific approach differs from other possible sources of knowledge, and how this approach works in political science. We will then discuss theories and hypotheses, which are important building blocks in the scientific approach. After completing this topic, students should have a good idea about what the primary goals of political science are and (in general terms) how we pursue these goals; the rest of the semester will explore the various techniques that are used to pursue them.

### 6-8. Friday, Jan. 26 - Wednesday, Jan. 31: Research Design and Causality

- Day 1 of this topic: Experiments
  - **Assignment #3 due before class today: Experiments quiz (available in Canvas)**
  - KWT: chapter 3 ("Evaluating Causal Relationships," all), sections 4.1-4.2 ("Comparison as the Key to Establishing Causal Relationships" and "Experimental Research Designs," pp. 65-77)
  - Canvas*: Stephen Ansolabehere, Shanto Iyengar, Adam Simon, and Nicholas Valentino (1994). "Does Attack Advertising Demobilize the Electorate?" *American Political Science Review* 88, 4 (December): 829-838.
- Day 2: Threats to causality / Quasi-experiments
  - **Assignment #4 due before class today: Quasi-experiments quiz (available in Canvas)**
  - Canvas*: Donald T. Campbell and H. Laurence Ross (1968). "The Connecticut Crackdown on Speeding: Time-Series Data in Quasi-Experimental Analysis." *Law and Society Review* 3, 1: 33-54.
- Day 3: Statistical control / Case studies and comparative method
  - **Assignment #5 due before class today: Comparative Method quiz (available in Canvas)**
  - Canvas*: John T. Ishiyama (1993). "Founding Elections and the Development of Transitional Parties: The Cases of Estonia and Latvia, 1990-1992." *Communist and Post-Communist Studies* 26, 3 (September): 277-299.
  - KWT: remainder of chapter 4 (pp. 77-83)
- *Overview of Topic*: This topic will discuss research design issues, particularly relating to the ways that poli sci research differs from work in the natural sciences. This will include the role of experimental design in many sciences, with discussion of the limits of this approach in political science; the difference between covariation and causation as an obstacle to causal inference in the social sciences; and a number of strategies to help overcome these problems (ranging from comparative case studies to quasi-experimental techniques and statistical control). The Ansolabehere et al. reading is a true experiment in political science, the Campbell and Ross reading is a classic application of quasi-experimental design, and the Ishiyama reading applies the Most Similar Systems design for comparative case studies. For each reading, think about how convincing the authors' approach is (are you convinced that Ansolabehere et al.'s findings would hold outside of the laboratory setting? are you convinced that Campbell and Ross's findings actually reflect the causal process they claim? are you convinced that by looking at otherwise similar cases, Ishiyama is able to isolate causal processes?).

### 9-13. Friday, Feb. 2 - Monday, Feb. 12: Political Science Research Skills

- Day 1 of this topic: Reading journal articles
  - **Assignment #6 due before class today: Reading Articles quiz (available in Canvas)**

--Canvas: Leanne Powner (2023). "Reading and Understanding Political Science."

<<https://leannepowner.com/tchdocs/readings23.pdf>>

--Canvas: Jesse C. Johnson and Brett Ashley Leeds (2011). "Defense Pacts: A Prescription for Peace?" *Foreign Policy Analysis* 7, 1 (January): 45-65.

--Skim over the journal articles that we read earlier in the semester (Ansolabehere et al., Campbell/Ross, and Ishiyama) as well as today's assigned article, focusing on how each article is organized (as discussed by Powner). Be ready to talk about how these articles are organized, and about how different types of articles look different.

• Day 2: Researching and writing literature reviews

--KWT: chapter 12 ("Putting It All Together to Produce Effective Research," section 12.2 ("Using the Literature without Getting Buried in It," pp. 251-254)

--Canvas: Jeffrey W. Knopf (2006). "Doing a Literature Review." *PS: Political Science and Politics* 31(1): 127-132.

• Day 3: Evaluating sources in research

--Canvas: Cameron Thies (2002). "A Pragmatic Guide to Qualitative Historical Analysis in the Study of International Relations." *International Studies Perspectives* 3: 351-372.

• Day 4: Citing sources

--Web: Paul R. Hensel (2022), "Paul Hensel's Citations and Plagiarism Page."

<<https://paulhensel.org/teachcite.html>>

• Day 5: Review before Midterm Exam #1

- *Overview of Topic*: This topic will cover a number of skills that will be invaluable in the rest of your undergraduate studies: what to look for when reading poli sci research; how to search for relevant research and write a literature review; how to evaluate sources when researching a case study (or reading the news, writing a research paper, or collecting data); and why, when, and how to cite your sources.

## 14. Wednesday, Feb. 14: EXAM #1

## 15-17. Friday, Feb. 16 - Wednesday, Feb. 21: Concepts, Variables, and Measurement

• Day 1 of this topic: Concepts and variables

--**Assignment #7 due before class today: Concepts & Variables quiz (available in Canvas)**

--KWT: chapter 6 ("Measuring Concepts of Interest," all)

--Canvas: Jeffery J. Mondak and Mitchell S. Sanders (2003). "Tolerance and Intolerance, 1976-1998." *American Journal of Political Science* 47, 3 (July): 492-502.

• Day 2: Measurement error

--**Assignment #8 due before class today: Measurement exercise (available in Canvas)**

--No new reading

• Day 3: Using existing data sets / Collecting your own data

--No new reading

• *Overview of Topic*: This topic will address the difference between concepts, variables, and indicators. We will also consider measurement error and issues related to reliability and validity. The Mondak and Sanders article illustrates many of these measurement issues with respect to the concept of tolerance, and highlights the difficulties inherent in measuring the concept accurately. We will then consider where and how political scientists get our data. We will discuss the benefits and drawbacks of using existing data sets as well as collecting your own data, and (if there is time) we will look at how these issues play out in some major data sets that are used by political scientists studying American government, comparative politics, and international relations.

## 18. Friday, Feb. 23: Using SPSS (or PSPP)

• Day 1 of this topic:

--**Assignment #9 completed IN CLASS today: in-class survey (this is the only assignment that will be completed in class rather than online through Canvas – during class today, everybody will complete a survey**



that replicates questions from the American National Election Studies and General Social Survey, which we will use for examples of statistical techniques in class later in the semester)

--Paul R. Hensel, "SPSS Guide"

<<https://paulhensel.org/Teaching/SPSS.pdf>>

• *Overview of Topic:* This class period will be devoted to exploring the SPSS or PSPP software that will be used for future homework assignments. We will consider the differences between SPSS and PSPP, and we will examine the ways that these software packages work. After this, students should be able to use SPSS or PSPP to complete the remaining homework assignments for the course.

## **19-22. Monday, Feb. 26 - Monday, March 4: Descriptive Statistics**

• Day 1 of this topic: Types of variables / Intro to descriptive statistics

--KWT: sections 7.1, 7.2, 7.5 ("Getting to Know Your Data Statistically," "What is the Variable's Measurement Metric?," and "Limitations of Descriptive Analyses and Graphs"; pp. 114-119 and 127-128)

• Day 2: Describing nominal and ordinal-level data

--KWT: section 7.3 ("Describing Categorical Variables," pp. 119-121)

• Day 3: Describing nominal and ordinal-level data

--No new reading

• Day 4: Describing interval-level data

--**Assignment #10 due before class today: Descriptive Statistics exercise (available in Canvas)**

--KWT: section 7.4 ("Describing Continuous Variables," pp. 119-127)

• *Overview of Topic:* The remainder of the course will examine specific methods and techniques that we use in the scientific study of politics. The first topic in this section of the course will focus on the use of descriptive statistics to summarize data, beginning with such basic descriptives as percentages, bar and pie graphs/charts, and histograms. We will then move on to measures of central tendency (mean, median, and mode) and measures of dispersion (such as standard deviation). These techniques are important for getting a basic understanding of any variable, which you should always do before you can start studying how this variable might be related to other variables.

## **23. Wednesday, March 6: EXAM #2**

## **24-29. Friday, March 8 - Wednesday, March 20: Sampling and Inferential Statistics**

• Day 1 of this topic: Intro to Sampling

--**Assignment #11 due before class today: Sampling & Polling quiz (available in Canvas)**

--KWT: chapter 5 ("Survey Research," all)

--American Association for Public Opinion Research (7/19/2021). "2020 Pre-Election Polling: An Evaluation of the 2020 General Election Polls", executive summary.

--Nate Cohn (7/28/2023). "How Did We Do? A Review of 2022 Before Our First Poll of 2023." *New York Times*.

• **March 11-15: SPRING BREAK**

• Day 2: Sampling, continued

--**Homework #1 due today: Descriptive statistics (turned in through Canvas)** This assignment will use SPSS or PSPP software to run some descriptive statistics on data sets that I will provide for you, and to interpret the results of these statistics.

--KWT: chapter 8 ("Probability and Statistical Inference," all)

• Day 3: Estimating population parameters

--No new reading

• *Overview of Topic:* This topic will begin by looking at the basic idea of inferential statistics, or using a small sample of individuals to study the characteristics or attitudes of an entire population. We will discuss how pollsters or survey designers attempt to understand political attitudes or presidential approval by interviewing no more than a few thousand respondents, as well as why these attempts aren't always successful. We will explore probability and the normal curve/distribution, which are very useful for a lot of what we do. We will

then explore some of the ways that these topics are applied, such as the calculation of confidence intervals for the purpose of inference.

### **30-31. Friday, March 22 - Monday, March 25: Statistical Significance & Hypothesis Testing**

- Day 1 of this topic:

- KWT: sections 9.1-9.2-9.3 (“Bivariate Hypothesis Tests and Establishing Causal Relationships,” “Choosing the Right Bivariate Hypothesis Test,” and “All Roads Lead to p”: pp. 147-152)

- Day 2: Significance, continued

- No new reading

- *Overview of Topic:* Here we begin to examine the process of hypothesis testing, which is used to determine whether the differences we observe are "statistically significant" (a key element in the scientific research process). The basic ideas from this topic will be important to everything else that we will cover in the rest of the course.

### **32-35. Wednesday, March 27 - Wednesday, April 3: Hypothesis Testing: Categorical Dependent Variables**

- Day 1 of this topic: Crosstabs

- KWT: section 9.4.1 (“Tabular Analysis”: pp. 152-158)

- Day 2:  $X^2$  tests

- No new reading

- Days 3-4: Association between nominal/ordinal-level variables

- No new reading

- *Overview of Topic:* The next group of lectures will apply the use of statistical significance for hypothesis testing about categorical (nominal or ordinal) variables. We will begin by using crosstabulation and Chi-square ( $X^2$ ) tests, which are useful for exploring the significance of the relationship between two variables. We will then consider a number of ways to assess the direction and strength of this relationship (if any), which provides much more useful information about the extent to which knowledge of one variable allows us to predict the value of the other.

### **36. Friday, April 5: MIDTERM EXAM #3**

### **37-40. Monday, April 8 - Monday, April 15: Hypothesis Testing: Continuous Dependent Variables**

- Day 1 of this topic: Difference of means tests

- KWT: section 9.4.2 (“Difference of Means”: pp. 159-162)

- Day 2: Difference of means, continued

- Homework #2 due today: Hypothesis Testing-Categorical (turned in through Canvas)** This assignment will use SPSS or PSPP software to run some hypothesis tests on categorical variables using data sets that I will provide for you, and to interpret the results of these tests.

- No new reading

- Day 3: Analysis of Variance (ANOVA) and Scatterplots

- KWT: sections 9.4.4-9.5 (“Analysis of Variance” and “Multiple Comparisons”: pp. 168-172)

- Day 4: Correlation

- KWT: section 9.4.3 (“Correlation Coefficient,” pp. 162-168)

- *Overview of Topic:* These lectures will conclude the section on hypothesis testing by examining how we test hypotheses about continuous or interval level variables. We will begin with hypothesis tests about the difference of means between two samples, where the goal is to compare the means of two different groups. We will then examine analysis of variance (ANOVA), which compares the means across more than two groups. These techniques are useful for all kinds of comparisons between groups, ranging from the grades of different groups of students to the political attitudes of different groups of voters or the socioeconomic conditions in different types of countries. We will conclude by using scatterplots and correlations to assess the strength and direction of relationships.

#### **41-46. Wednesday, April 17 - Monday, April 29: Regression and Beyond**

- Day 1 of this topic: Bivariate regression
  - KWT: chapter 10 (“Two-Variable Regression Models,” all)
- Day 2: Bivariate regression, continued
  - Homework #3 due today: Hypothesis Testing-Continuous (turned in through Canvas)** This assignment will use SPSS or PSPP software to run some hypothesis tests on continuous variables using data sets that I will provide for you, and to interpret the results of these tests.
    - No new reading
- Day 3: Multiple regression
  - KWT: chapter 11 (“Multiple Regression,” sections 11.1-11.10: pp. 201-232)
- Day 4: Multiple regression, continued
  - No new reading
- Day 5: Logistic regression and other advanced methods
  - KWT: section 11.11 “Dummy Dependent Variables” (pp. 232-241)
- Day 6: Advanced methods, continued
  - Homework #4 due today: Regression (turned in through Canvas)** This assignment will use SPSS or PSPP software to run some regression analyses using data sets that I will provide for you, and to interpret the results of these analyses.
    - No new reading
  - *Overview of Topic*: The last few weeks of the semester will examine how we study associations between interval- or ratio-level variables. We will begin by focusing on bivariate relationships (i.e., associations between one independent variable and one dependent variable). This will cover the interpretation of bivariate regression and such matters as significance testing and assessing model fit. We will then expand this to multiple regression analysis (bringing in more than one independent variable) and to some extensions, such as the use of dummy variables, interaction terms, and model specification. We will conclude with a brief examination of more advanced techniques (logit / probit analysis, multinomial and ordered models, survival / duration analysis, event count models, and selection models) that you will frequently see in published research in Political Science. This will help you to understand the main idea when you are reading research in this field (such as in your upper-division courses), and it may help guide you to the most appropriate method if you are undertaking your own research later.

#### **47. Wednesday, May 1: Course Wrapup**

- KWT: section 1.6, “The Ethics of Social Research” (pp. 19-25); chapter 12 (“Putting It All Together to Produce Effective Research,” all)
- *Overview of Topic*: This is the day when we try to wrap up the entire course and bring everything together. Look back to the summary of the class in this syllabus and in the notes from the first class meeting, as those offered a brief outline of what the course was meant to do, what you were expected to learn, and what skills you were expected to develop through the course.

#### **48. Friday, May 3: NO CLASS (Reading Day)**

#### **Saturday, May 4: FINAL EXAM, 10:30 AM-12:30 PM (in the regular classroom)**

- *The final exam is held on the day during Final Exam Week that is assigned by UNT, based on the time when our class meets:* <<https://registrar.unt.edu/exams/final-exam-schedule>>